

PROPOSED MAGNETIC AND ALLIED OBSERVATIONS DURING THE TOTAL SOLAR ECLIPSE OF MAY 29, 1919.

By Dr. L. A. BAUER, Director.

[Dated: Washington, February 15, 1919.]

Special magnetic and allied observations will be made at certain stations inside and outside the shadow belt of the total solar eclipse of May 29, 1919, by the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, and by various magnetic observatories, institutions, and individuals who have offered their cooperation. The stations of the department of terrestrial magnetism will be probably: (1) La Paz,

Bolivia; (2) Huancayo (north of belt of totality); (3) near Sobral, Brazil; (4) Ile Principe or Libreville, French Congo; (5) stations outside of belt totality by field parties as found possible. At station 3 complete magnetic and electric observations will be attempted.

It is hoped that full reports will be forwarded as soon as possible for publication in the journal of *Terrestrial Magnetism and Atmospheric Electricity*. Those interested are referred to the results of the observations made during the solar eclipse of June 8, 1918, the publication of which was begun in the September, 1918, issue of the journal. A summary of the magnetic results obtained is given in the March, 1919, issue.

HALO PHENOMENA OBSERVED DURING JANUARY, 1919.

By WILLIS RAY GREGG, METEOROLOGIST.

Station.	Altitude.	Latitude.	Longitude.	Date.	Form observed.	Time of—		Theodolite readings.					
						Beginning.	Ending.	Time.	Radius inside.	Radius outside.	Length of arc.	Distance from sun or moon.	Altitude of sun or moon.
Broken Arrow, Okla.*	233	36 02	95 49	3	Solar halo, 22°	8:15 a. m.	8:30 a. m.						
					Parhelion, 22° right	7:34 a. m.	8:30 a. m.						
					Parhelion, 22° left	7:34 a. m.	8:30 a. m.						
					Solar halo, 22°	11:22 a. m.	12:00 m.						
					Solar halo, 22°	10:55 a. m.	1:00 p. m.						
					Lunar halo, 22°	6:40 p. m.	6:45 p. m.						
					Solar halo, 22°	9:15 a. m.	1:30 p. m.	9:20 a. m.	22	23	270	17.5	
					Solar halo, 22°	1:00 p. m.	2:20 p. m.	2:20 p. m.	22	23	180	27	
					Lunar halo, 22°	7:30 p. m.	8:30 p. m.						
					Solar halo, 22°	3:15 p. m.	4:00 p. m.	3:35 p. m.	22	23	190	19.5	
Canton, N. Y.	137	44 36	75 10	25	Lunar halo, 22°	D. N., a. m.	6:25 a. m.						
					Solar halo, 22°	10:50 a. m.	2:30 p. m.	10:55 a. m.	22	23.5	360	30	
					Solar halo, 22°	2:00 p. m.	3:00 p. m.						
					Solar halo, 22°	11:00 a. m.	11:35 a. m.						
					Solar halo, 22°	11:20 a. m.	12:35 p. m.						
					Solar halo, 22°	11:05 a. m.	11:20 a. m.						
Cincinnati, Ohio.	191	39 06	84 30	13	Lunar halo, 22°	5:45 p. m.	6:30 p. m.						
					Solar halo, 22°	8:10 a. m.	2:40 p. m.						
					Solar halo, 22°	1:40 p. m.	2:00 p. m.						
Dayton, Ohio.	274	39 46	84 10	25	Solar halo, 22°	8:50 a. m.	9:05 a. m.						
					Solar halo, 22°	7:40 a. m.	7:55 a. m.						
					Solar halo, 22°	10:30 a. m.	12:18 p. m.	10:42 a. m.	22	23	40	22	
					Parhelion, 22° right	10:39 a. m.	12:18 p. m.	10:43 a. m.				22	
Drexel, Nebr.*	396	41 20	96 16	2	Parhelion, 22° left	10:39 a. m.	12:18 p. m.	10:44 a. m.					
					Circumzenithal arc	11:26 a. m.	11:32 a. m.	11:32 a. m.			18	46	25
					Solar halo, 22°	1:45 p. m.	2:24 p. m.	1:51 p. m.	22	23	200	23	
					Parhelion, 22° right	1:45 p. m.	2:24 p. m.	1:51 p. m.			4	25	23
					Parhelion, 22° left	1:45 p. m.	2:24 p. m.	1:51 p. m.			4	25	23
					Upper tangent arc	1:45 p. m.	2:24 p. m.	1:51 p. m.			4	25	23
					Solar halo, 46°	1:45 p. m.	2:13 p. m.	1:51 p. m.	46	47	100	23	
					Solar halo, 22°	10:14 a. m.	3:00 p. m.	10:17 a. m.	22	23	180	18	
					Lunar halo, 22°	6:00 p. m.	6:45 p. m.	6:45 p. m.	22	23	360	57	
					Lunar halo, 22°	12:15 a. m.	D. N., a. m.	1:00 a. m.			360		
					Solar halo, 22°	10:20 a. m.	2:30 p. m.	10:38 a. m.	22	23	80	20	
					Solar halo, 46°	10:34 a. m.	2:05 p. m.	10:38 a. m.	45	46	180	20	
					Circumzenithal arc	10:20 a. m.	11:45 a. m.	10:38 a. m.			15	46	20
					Lunar halo, 22°	10:05 p. m.	10:30 p. m.	10:15 p. m.			360		
					Solar halo, 22°	8:25 a. m.	9:45 a. m.	9:11 a. m.	22	23	180	11	
					Solar halo, 22°	8:10 a. m.	8:45 a. m.	8:20 a. m.	22	23	100	6	
					Parhelion, 22° left	8:10 a. m.	8:45 a. m.	8:20 a. m.				22	6
Ellendale, N. Dak.*	444	45 59	98 34	1	Solar halo, 22°	12:45 p. m.	2:50 p. m.						
					Parhelion, 22° right	12:50 p. m.	2:50 p. m.						
					Parhelion, 22° left	12:50 p. m.	2:50 p. m.						
					Circumzenithal arc	12:53 p. m.	2:10 p. m.						
					Solar halo, 22°	11:30 a. m.	4:59 p. m.	3:00 p. m.	22	23	360		
					Solar halo, 22°	11:00 a. m.	2:00 p. m.	11:07 a. m.	22	23			
					Circumhorizontal arc	11:05 a. m.	1:10 p. m.	11:07 a. m.			40	45	
					Solar halo, 22°	11:45 a. m.	12:40 p. m.	11:48 a. m.	22.2	23.3		20	
					Lunar halo, 22°	7:30 p. m.	D. N., p. m.						
					Lunar halo, 22°	7:20 p. m.	D. N., p. m.						
Groesbeck, Tex.*	141	31 30	96 29	15	Upper tangent arc	8:00 p. m.	9:20 p. m.						
					Lunar halo, 22°	4:30 a. m.	6:15 a. m.	5:35 a. m.	22.5	23.5	280	19.5	
					Solar halo, 22°	7:48 a. m.	Sunset.	7:48 a. m.	25.5	26.5	80	4.5	
					Solar halo, 22°	7:48 a. m.	Sunset.	9:02 a. m.	23	24.5	180	18	
					Solar halo, 22°	7:48 a. m.	Sunset.	2:30 p. m.	22	25	360	33	
					Solar halo, 22°	8:10 a. m.	Sunset.						
Leesburg, Ga.*	85	31 47	84 14	7	Lunar halo, 22°	5:55 p. m.	8:30 p. m.	6:40 p. m.			360		
					Solar halo, 22°	9:05 a. m.	9:30 a. m.				200		
					Lunar halo, 22°	3:45 p. m.	9:30 p. m.	6:15 p. m.			220		
					Solar halo, 22°	2:59 p. m.	3:10 p. m.	3:08 p. m.	22	23	90	18.3	
					Solar halo, 22°	7:28 a. m.	9:30 a. m.				80		
					Solar halo, 22°	3:55 p. m.	4:35 p. m.	4:00 p. m.			180		
					Solar halo, 22°	7:15 a. m.	4:10 p. m.	11:30 a. m.	22		180		
					Solar halo, 22°	7:18 a. m.	2:45 p. m.	1:10 p. m.	22	23.5	345		
					Solar halo, 22°	10:00 a. m.	4:00 p. m.	1:10 p. m.			360		
					Solar halo, 22°	8:40 a. m.	1:35 p. m.	11:30 a. m.	22		360		
					Solar halo, 22°	8:17 a. m.	10:00 a. m.	9:00 a. m.			180		

*Aerological station.

Halo phenomena observed during January, 1919—Continued.

Station.	Altitude.	Latitude.	Longitude.	Date.	Form observed.	Time of—		Theodolite readings.											
						Beginning.	Ending.	Time.	Radius inside.	Radius outside.	Length of arc.	Distance from sun or moon.	Altitude of sun or moon.						
Madison, Wis.....	m. 297	43 05	89 23	3	Parheliion, 22° right...	8:00 a. m.	8:30 a. m.												
					3	Parheliion, 22° left...	8:00 a. m.	8:30 a. m.											
					6	Solar halo, 22°.....	11:45 a. m.	12:15 p. m.											
					10	Solar halo, 22°.....	1:30 p. m.	2:30 p. m.											
					11	Lunar halo, 22°.....	8:30 p. m.	8:45 p. m.											
					12	Solar halo, 22°.....	11:50 a. m.	1:15 p. m.											
					13	Solar halo, 22°.....	10:00 a. m.	2:00 p. m.											
					13	Lunar halo, 22°.....	6:00 p. m.	7:10 p. m.											
					14	Solar halo, 22°.....	1:30 p. m.	2:20 p. m.											
					14	Lunar halo, 22°.....	D. N., a. m.	7:00 a. m.											
					18	Solar halo, 22°.....	9:20 a. m.	9:30 a. m.											
					18	Solar halo, 22°.....	8:30 a. m.	10:00 a. m.											
					27	Solar halo, 22°.....	8:40 a. m.	8:50 a. m.											
					27	Parheliion, 22° right...	8:50 a. m.	10:00 a. m.											
					27	Upper tangent arc.....	9:55 a. m.	12:00 p. m.											
					28	Solar halo, 22°.....	11:30 a. m.	11:50 a. m.											
					28	Parheliion, 22° right...	11:30 a. m.	11:50 a. m.											
					28	Parheliion, 22° left...	8:40 a. m.	8:45 a. m.											
					30	Parheliion, 22° right...	8:30 a. m.	8:50 a. m.											
					30	Parheliion, 22° left...	8:30 a. m.	8:55 p. m.											
					Nashville, Tenn.....	166	36 10	86 47	13	Solar halo, 22°.....	6:20 p. m.	D. N., p. m.							
										13	Lunar halo, 22°.....	6:00 p. m.	6:30 p. m.						
										15	Solar halo, 22°.....	8:45 a. m.	11:00 a. m.						
										16	Solar halo, 22°.....	9:20 a. m.	11:00 a. m.						
										31	Solar halo, 22°.....	8:37 a. m.	11:15 a. m.						
										31	Solar halo, 22°.....	10:45 a. m.	11:10 a. m.						
					Royal Center, Ind.*.....	225	40 53	86 29	12	Solar halo, 22°.....	8:37 a. m.	11:15 a. m.	8:50 a. m.			200		14.5	
										13	Solar halo, 22°.....	10:45 a. m.	11:10 a. m.	10:55 a. m.			150		
										13	Solar halo, 22°.....	5:30 p. m.	D. N., p. m.	8:10 p. m.			390		
										13	Lunar halo, 22°.....	10:30 a. m.	12:15 p. m.	11:15 a. m.			180		
27	Solar halo, 22°.....	11:45 a. m.	11:50 a. m.									60							
28	Solar halo, 22°.....	11:48 a. m.	12:10 p. m.	11:55 a. m.								180							
30	Solar halo, 22°.....	11:35 a. m.	12:00 m.	11:43 a. m.						22		200		31					
30	Parheliion, 22° right...	11:20 a. m.	12:00 m.	11:43 a. m.								10	25	31					
30	Parheliion, 22° left...	11:23 a. m.	12:00 m.	11:43 a. m.								10	25	31					
30	Solar halo, 22°.....	10:58 a. m.	12:18 p. m.																
Tatoosh Island, Wash.....	26	48 23	124 44	7	Parheliion, 22° right...	11:37 a. m.	11:54 a. m.												
					7	Parheliion, 22° left...	11:50 a. m.	12:18 p. m.											
					8	Solar halo, 22°.....	8:50 a. m.	9:45 a. m.											
					8	Lunar halo, 22°.....	7:33 p. m.	7:38 p. m.											
					9	Solar halo, 22°.....	12:10 p. m.	12:25 p. m.											
					9	Lunar halo, 22°.....	7:05 p. m.	D. N., p. m.											
					19	Solar halo, 22°.....	2:30 p. m.	2:50 p. m.											
					19	Parheliion, 22° right...	3:20 p. m.	3:28 p. m.											
					20	Lunar halo, 22°.....	5:03 a. m.	6:25 a. m.											
					20	Lunar halo, 46°.....		6:00 a. m.											
					20	Upper tangent arc.....		6:00 a. m.											
					20	Solar halo, 22°.....	8:32 a. m.	10:40 a. m.											
					20	Parheliion, 22° right...	8:32 a. m.	9:50 a. m.											
					20	Parheliion, 22° left...	9:10 a. m.	9:50 a. m.											
					21	Solar halo, 22°.....	9:20 a. m.	12:20 p. m.											
					23	Solar halo, 22°.....	3:05 p. m.	4:05 p. m.											
					23	Solar halo, 46°.....	3:18 p. m.	3:25 p. m.											
					24	Lunar halo, 22°.....	6:26 a. m.	6:34 a. m.											
					24	Solar halo, 22°.....	9:56 a. m.	10:40 a. m.											
					24	Upper tangent arc.....	10:28 a. m.	10:32 a. m.											
					26	Solar halo, 23°.....	1:41 p. m.	1:43 p. m.											
					28	Solar halo, 22°.....	3:50 p. m.	4:04 p. m.											
					28	Light pillar.....	5:15 p. m.	5:30 p. m.											
					29	Solar halo, 22°.....	8:40 a. m.	5:05 p. m.											
					29	Parheliion, 22° right...	8:40 a. m.	4:33 p. m.											
					29	Parheliion, 22° left...	8:40 a. m.	4:40 p. m.											
					29	Upper tangent arc.....	4:18 p. m.	4:33 p. m.											
					29	Solar halo, 46°.....	2:40 p. m.	2:45 p. m.											
					29	Circumzenithal arc.....	2:40 p. m.	2:45 p. m.											
					29	Light pillar.....	5:05 p. m.	5:15 p. m.											
York, N. Y.....	232	42 52	77 53	4	Solar halo, 22°.....	4:30 p. m.	4:35 p. m.												
					12	Lunar halo, 22°.....	6:35 p. m.	9:20 p. m.	7:15 p. m.			360							
					12	Lunar halo, 46°.....			7:30 p. m.			90							
					15	Solar halo, 22°.....	9:25 a. m.												
					16	Lunar halo, 22°.....	8:15 p. m.	8:45 p. m.	8:20 p. m.			30							
					18	Solar halo, 22°.....			3:30 p. m.										
22	Lunar halo, 22°.....			2:20 a. m.															

*Aerological station.

Halo phenomena observed during January, 1919—Continued.

Station.	Date.	Colors.†	Degree of brightness	Clouds.			Station pressure.	Precipitation.		
				Amount.	Kind.	Direction.		Last previous ended.	First subsequent began.	
Broken Arrow, Okla.*	3	R, Y	Bright				Rising	3:15 p. m., 1st	5:00 p. m., 4th.	
	3		Bright							
	3		Bright							
	4		Dim	1	A. st.	nw.	Falling	3:15 p. m., 1st	5:00 p. m., 4th.	
	10	R	Dim	6	Cl.	n.	Falling	7:10 p. m., 4th.	D. N., p., 13th.	
	11		Dim	6	Cl. st.	n.	Stationary	7:10 p. m., 4th.	D. N., p., 13th.	
	13	R	Bright	10	Cl. st.	w.	Rising	7:10 p. m., 4th.	D. N., p., 13th.	
	15	R	Dim	3	Cl. st.	wsw.	Falling	D. N., a., 14th.	D. N., a., 16th.	
	15		Dim	4	A. st.	sw.	Falling			
	15		Dim	8	A. st.	w.	Falling			
	24	R	Dim	10	Cl. st.	sw.	Stationary	12:10 p. m., 20th.	D. N., a., 27th.	
	25	Y	Dim	7	Cl. st.	sw.	Rising	12:10 p. m., 20th.	D. N., a., 27th.	
	25	R	Dim	3	Cl. st.	sw.	Falling			
	25	R	Dim	7	A. st.	sw.	Rising			
	Canton, N. Y.	6	R, O	Dim	2	Cl. st.	w.	Falling	8:00 a. m., 4th.	8:00 p. m., 7th.
22		R, O	Dim	3	Cl. st.	w.	Falling	8:00 p. m., 19th.	8:00 p. m., 22d.	
28		R, O	Dim	3	Cl. st.	w.	Falling	8:00 p. m., 27th.		
Cincinnati, Ohio.	7	R, O, Y	Dim	6	Cl. st.	w.	Falling	10:40 a. m., 6th.	12:54 p. m., 7th.	
	13		Dim	8	Cl. st.	w.	Stationary	12:15 p. m., 9th.	1:30 a. m., 14th.	
	25	R, O, Y, G, B	Bright	10	Cl. st.	w.	Falling	11:55 a. m., 23d.	6:44 a. m., 3d.	
Dayton, Ohio.	4		Dim	6	Cl. st.	nw.	Stationary	8:30 p. m., 3d.	8:30 p. m., 5th.	
	25		Dim	5	Cl. st.	w.	Stationary	12:45 p. m., 23d.		
	28		Dim	6	Cl. st.	nw.	Falling	12:45 p. m., 23d.		
Drexel, Nebr.*	2	R, O, G	Dim	1	St.	nw.	Rising	11:30 p. m., 31st.	2:30 p. m., 2d.	
	2	R, O, G	Bright	1	St.	nw.				
	2	R, O, G	Bright	1	St.	nw.				
	2	R, O, G	Dim	4	St.	nw.				
	5	O, Y, G, B	Bright	2	Cl. st.	nw.	Falling	7:50 p. m., 4th.	D. N., a., 7th.	
	5	O	Bright							
	5	O	Dim							
	5	O, Y, G, B	Dim							
	11		Dim	7	Cl. st.	w.	Stationary	2:30 p. m., 7th.	7:58 a. m., 22d.	
	11		Bright	10	Cl. st.	w.	Stationary			
	13		Bright	10	Cl. st.	wsw.	Rising	2:30 p. m., 7th.	7:58 a. m., 22d.	
	13	O, Y, G, B	Dim	10	Cl. st.	wsw.	Stationary			
	13	O, Y, G, B	Dim							
	13	R, G, B	Bright							
	17		Dim	10	Cl. st.	nw.	Stationary	2:30 p. m., 7th.	7:58 a. m., 22d.	
24	R, O, Y, G, B	Dim	10	Cl. st.	wsw.	Stationary	11:00 a. m., 22d.	3:50 p. m., 1st.		
30	O	Dim	4	Cl. st.	nw.	Rising	11:00 a. m., 22d.	3:50 p. m., 1st.		
30	O	Bright								
Ellendale, N. Dak.*	1	R	Bright				Falling	10:20 a. m., 1st.	1:50 p. m., 3d.	
	1									
	1									
	2	R	Bright				Rising	10:20 a. m., 1st.	1:50 p. m., 3d.	
	4	R	Brilliant				Rising	10:00 a. m., 4th.	4:45 p. m., 6th.	
	4	R	Brilliant							
	7	R	Dim	6	Cl. st.		Falling	5:40 p. m., 6th.	9:15 a. m., 13th.	
	10		Bright	7	Cl. st.	nw.	Stationary	5:40 p. m., 6th.	9:15 a. m., 13th.	
	15	R	Bright				Falling	9:50 a. m., 13th.	5:05 p. m., 21st.	
	15	R	Bright							
	25		Bright	4	Cl. st.	wnw.	Rising	11:20 a. m., 22d.	4:15 p. m., 2d.	
	28	R, O, Y, G, B	Bright	6	Cl. st.	wsw.	Rising	D. N., a., 22d.	12:08 p. m., 1st.	
	28	R, O, Y, G, B	Bright	7	Cl. st.	wsw.	Rising			
	28	R, Y, B	Bright	8	Cl. st.	wsw.	Stationary			
	Leesburg, Ga.*	7	R, O	Dim	2	Cl. st.		Stationary	4:00 p. m., 31st.	D. N., a., 2d.
15		R, O	Dim	10	A. st.	w.	Falling	D. N., p., 2d.	D. N., a., 8th.	
15		R	Dim	2	Cl. st.	w.	Stationary	D. N., a., 14th.	8:23 a., 16th.	
16		R, O, G	Bright	8	A. st.	w.	Rising			
22		R, O, G	Bright	8	Cl. st.	w.	Falling	8:28 a. m., 16th.	9:40 p. m., 16th.	
26			Dim	6	Cl. st.	nw.	Rising	3:30 p. m., 17th.	3:35 p. m., 22d.	
27		R, O	Dim	Few	Cl.	w.	Rising	D. N., a., 26th.	5:20 p. m., 2d.	
27		R, O, G	Dim	7	Cl. st.	nw.	Falling	D. N., a., 26th.	5:20 p. m., 2d.	
28		R, O, G	Bright	8	Cl. st.	w.	Stationary	D. N., a., 26th.	5:20 p. m., 2d.	
29		R, O, G	Dim	7	Cl. st.	wnw.	Falling	D. N., a., 26th.	5:20 p. m., 2d.	
30		R	Dim	4	Cl. st.	w.	Stationary	D. N., a., 26th.	5:20 p. m., 2d.	
31		R	Dim	9	A. st.	w.	Stationary	D. N., a., 26th.	5:20 p. m., 2d.	
Madison, Wis.		3	R	Brilliant	8	A. cu.	nw.	Stationary	7:30 a. m., 3d.	8:00 p. m., 4th.
		3	R	Brilliant						
		6		Dim	9	A. st.	s.	Falling	11:30 a. m., 6th.	8:30 a. m., 7th.
	10	R	Bright	8	Cl. st.	w.	Stationary	4:00 p. m., 7th.	2:45 p. m., 18th.	
	11		Dim	10	Cl. st.	w.	Stationary	4:00 p. m., 7th.	2:45 p. m., 18th.	
	12	R	Bright	9	A. st.	sw.	Falling	4:00 p. m., 7th.	2:45 p. m., 18th.	
	13	R	Dim	10	Cl. st.	w.	Stationary	4:00 p. m., 7th.	2:45 p. m., 18th.	
	13		Dim	7	Cl. st.	w.	Stationary			
	14	R, O	Bright	10	Cl. st.	w.	Stationary	4:00 p. m., 7th.	2:45 p. m., 18th.	
	18		Dim	10	Cl. st.	w.	Rising	4:00 p. m., 7th.	2:45 p. m., 18th.	
	18	R, O, B	Brilliant	9	Cl. st.	w.	Rising			
	27	R	Dim	6	Cl. st.	w.	Rising	3:00 p. m., 18th.	10:05 a. m., 3d.	
	27	R	Bright	6	Cl. st.	w.				
	28	R	Dim	3	Cl. st.	w.				
	28		Dim	10	Cl. st.	w.	Stationary	3:00 p. m., 18th.	10:05 a. m., 3d.	
30	R	Brilliant	1	Cl. st.	w.	Stationary	3:00 p. m., 18th.	10:05 a. m., 3d.		
30	R	Brilliant								
Nashville, Tenn.	13	O	Dim	8	Cl. st.	w.	Falling	D. N., p., 7th.	6:15 a. m., 14th.	
	13		Bright	8	Cl. st.	w.	Falling			
	15		Dim	6	Cl. st.		Stationary	7:45 p. m., 14th.	3:15 p. m., 16th.	
	16	R, O, Y	Dim	10	Cl. st.	w.	Stationary	7:45 p. m., 14th.	3:15 p. m., 16th.	
	31	R, O, Y	Dim	8	Cl. st.	w.	Stationary	10:00 a. m., 23d.	3:00 p. m., 3d.	
Royal Center, Ind.*	12		Dim	8	Cl. st.	w.	Stationary	6:00 p. m., 9th.	D. N., a., 23d.	
	13		Dim	8	Cl. st.	w.	Falling	6:00 p. m., 9th.	D. N., a., 23d.	
	13	R, O, Y, B	Bright	10	Cl. st.	w.	Stationary			
	25	R, O, Y, B	Dim	7	Cl. st.	w.	Falling	7:15 a. m., 23d.	7:18 a. m., 3d.	
	27		Dim	8	Cl. st.	w.	Falling	7:15 a. m., 23d.	7:18 a. m., 3d.	
	28	R, O, B	Dim	4	Cl. st.	w.	Falling	7:15 a. m., 23d.	7:18 a. m., 3d.	
	30	R, O, Y, G, B	Dim	7	Cl. st.	w.	Stationary	7:15 a. m., 23d.	7:18 a. m., 3d.	
	30	R, O, Y, G, B	Bright							
	30	R, O, Y, G, B	Bright							

*Aerological station.

† Beginning with part nearest sun or moon. R, red; O, Orange, etc.

Halo phenomena observed during January, 1919—Continued.

Station.	Date.	Colors.†	Degree of brightness.	Clouds.			Station pressure.	Precipitation.		
				Amount.	Kind.	Direction.		Last previous ended.	First subsequent began.	
Tatoosh Island, Wash.	7	O	Dim	2	Cl.	nw.	Rising	D. N., a., 6th.	D. N., a., 10th.	
	7	R, O, Y, G	Dim							
	7	R, O, Y, G, V	Dim							
	8	O	Dim	2	Cl. st.	w.	Rising	D. N., a., 6th.	D. N., a., 10th.	
	8	O	Dim							
	9	O	Dim	10	A. st.	s.	Falling	D. N., a., 6th.	D. N., a., 10th.	
	9	O	Dim	10	A. st.	s.	Falling	D. N., a., 6th.	D. N., a., 10th.	
	19	O	Dim	6	Cl.	w.	Rising	12:30 p. m., 19th.	2:15 p. m., 20th.	
	19	R, B	Dim	2	Cl.	w.				
	20	O	Dim	2	Cl.	sw.	Falling	12:30 p. m., 19th.	2:15 p. m., 20th.	
	20		Dim							
	20	R, B	Dim							
	20	R, O, G, B	Bright							
	20	R, O	Dim							
	21	R	Dim		3	Cl.	w.	Stationary	5:02 a. m., 21st.	6:31 p. m., 21st.
	13	R, O, Y, G	Bright		6	A. cu.	s.		5:02 a. m., 21st.	6:31 p. m., 21st.
	21	R, O, Y, G	Bright		4	A. st.	wsw.	Rising	2:55 p. m., 23d.	4:52 p. m., 23d.
	23	O	Dim							
	21	R, B	Bright		1	A. st.	wsw.	Falling	D. N., p., 23d.	6:55 a. m., 24th.
	24	O	Dim		8	A. st.	sw.		9:50 a. m., 24th.	10:50 a. m., 24th.
	24	O	Dim							
	25	Y	Dim		9	A. st.	w.	Falling	1:40 p. m., 26th.	3:35 p. m., 26th.
28	O	Dim		6	Cl.	sw.	Rising	2:20 p. m., 28th.	7:36 a. m., 30th.	
28	Y	Bright		1	Cl.	w.		2:20 p. m., 28th.	7:36 a. m., 30th.	
29	R, O, B	Bright		8	Cl. st.	wnw.	Stationary			
29	R, O, B	Dim								
29	R, B	Dim								
29	O	Dim		6	Cl. st.	w.				
29	O	Dim		7	Cl. st.	wnw.				
29	O	Dim								
29	Y	Dim		5	Cl.	w.				
4	R, O	Dim		1	St. cu.	sw.	Rising	2:00 p. m., 3d.	10:00 a. m., 8th.	
12		Bright		8	Cl. st.	w.	Falling	5:00 p. m., 10th.	5:30 p. m., 14th.	
12		Dim								
15				8	Cl. st.	w.	Stationary	12:00 m., 11th.	11:00 a. m., 15th.	
16	R	Dim		10	Cl. st.	sw.	Falling	5:00 p. m., 15th.	7:00 a. m., 19th.	
18							Rising	5:00 p. m., 15th.	7:00 a. m., 19th.	
22		Dim		10	St. cu.	sw.	Stationary	D. N., p., 21st.	11:00 a. m., 23d.	

*Aerological station.

† Beginning with part nearest sun or moon. R, red; O, Orange, etc.

NOTES.

Drexel, Nebr.—On January 2, halo phenomena were observed with only low-lying clouds present. The altitude of these clouds, as determined during kite flights, was about 1,700 meters. Temperatures at the surface

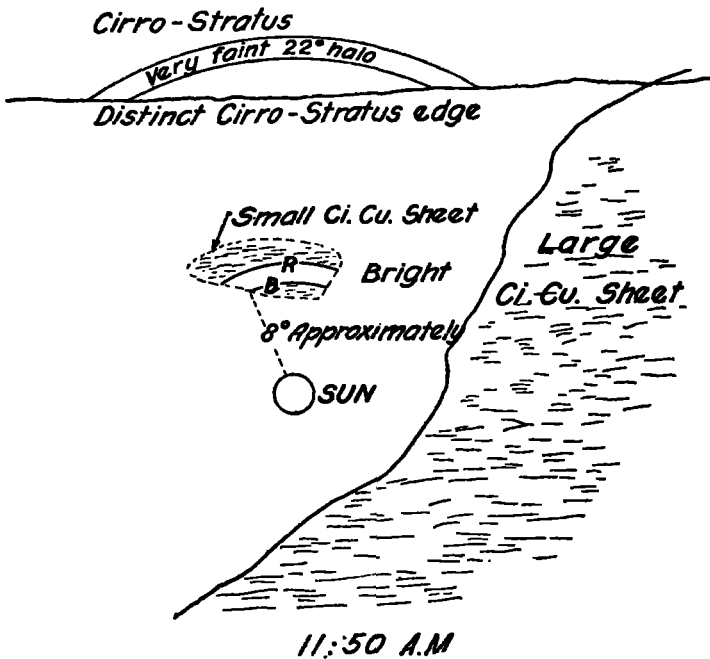


FIG. 1. Simultaneous formation of solar halo and solar corona observed January 27, 1919, at Royal Center, Ind.

were about -20° C. and at the altitude of the cloud layer, about -30° C. Although recorded as stratus, these clouds were probably composed of ice spicules, and therefore might have been designated "cirro-stratus," or, even better, be given a special name, since stratus clouds are usually thought of as dense, low-lying, and composed of water droplets, and cirro-stratus, as thin, high and icy.

Some discussion of halos formed under conditions similar to those above given may be found in Monthly Weather Review Supplement No. 12 (Aerology No. 7), p. 5.

Groesbeck, Tex.—A solar halo was observed throughout the day on January 28. Interesting variations were noted in the inner and outer radii, the former diminishing from 25.5° to 22° and the latter from 26.5° to 25° .

Leesburg, Ga.—The solar halo observed on the 29th had a vertical radius of 22° and a horizontal radius of $26\frac{1}{2}^{\circ}$. The measurements were made at 1:10 p. m., with a solar altitude of $36\frac{1}{2}^{\circ}$. Probably, therefore, the phenomenon observed was a circumscribed halo.

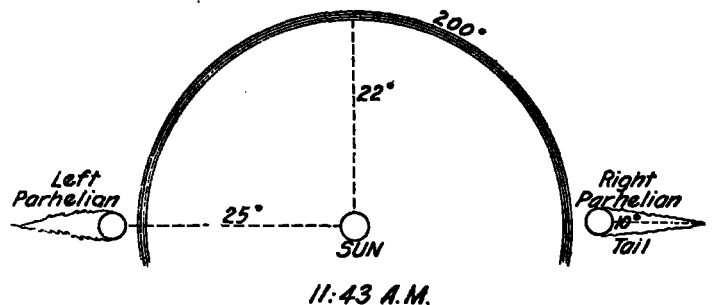


FIG. 2. Solar halo and well-developed parhelia observed January 30, 1919, at Royal Center, Ind.

Royal Center, Ind.—On January 27th there was a simultaneous occurrence of arcs of an 8° corona and a 22° halo, the former being due to Ci. Cu. clouds near the sun. These clouds were highly colored, the predominating colors being blue and violet. A sketch is shown in figure 1.

Unusually well developed parhelia were observed on January 30. See figure 2.

Beginning with this month two new stations are added to the list, viz., Tatoosh Island, Wash., R. C. Mize, Observer, and York, N. Y., Milroy N. Stewart, Cooperative Observer. Mr. Stewart's observations are made partly at York and partly at Rochester, N. Y.