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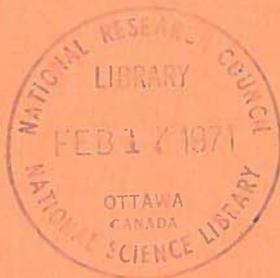


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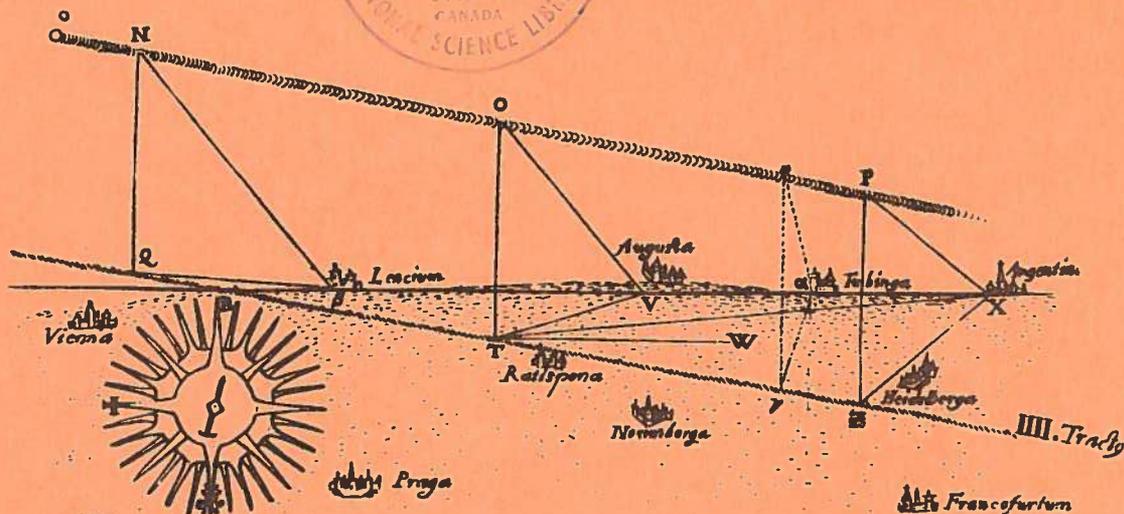
VISUAL METEOR PROGRAM — IGY

BULLETIN NO. 1

DECEMBER 1957



ANALYZED



Fireball of November 7, 1623, as plotted over Germany

RADIO AND ELECTRICAL ENGINEERING DIVISION

NATIONAL RESEARCH COUNCIL

OTTAWA, CANADA

ERB-454

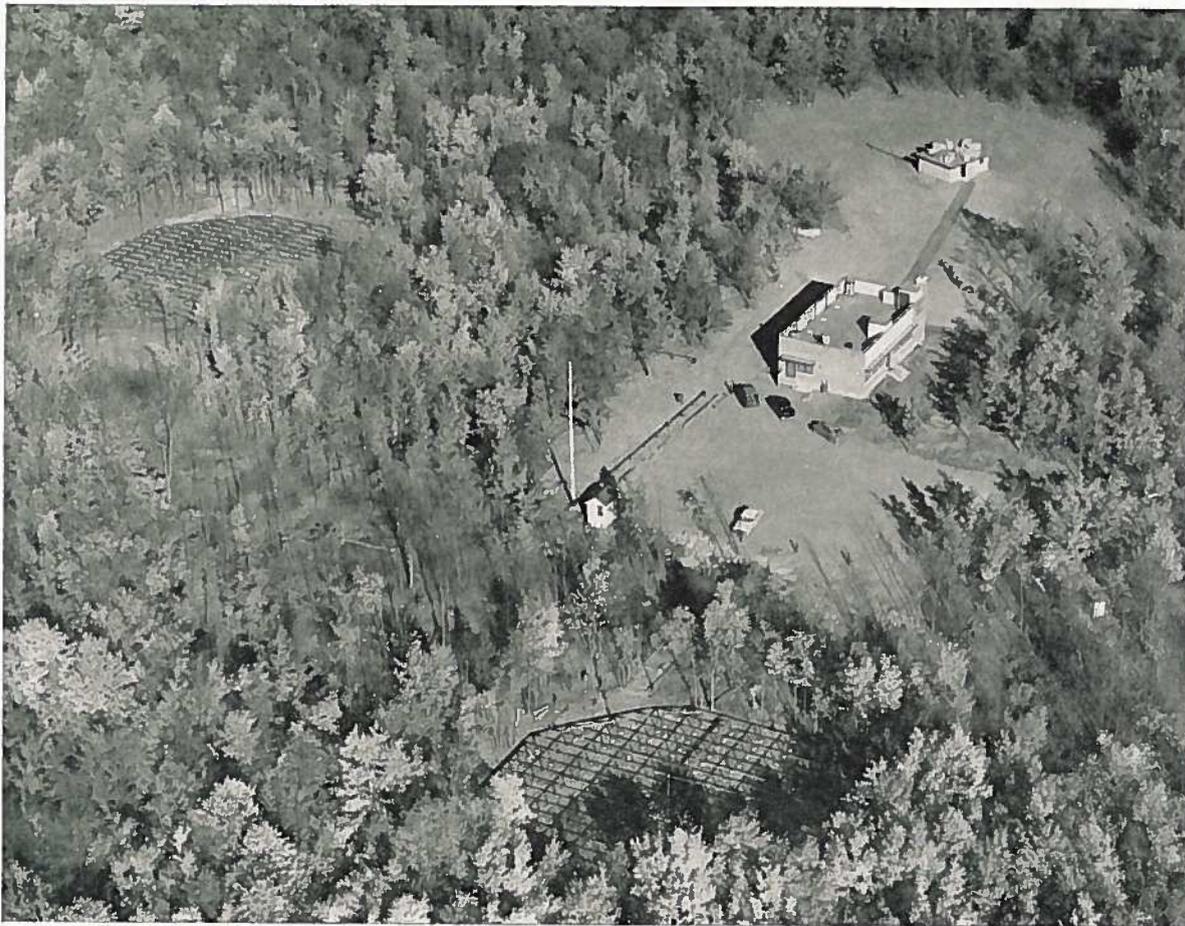


Plate I — Aerial view of the Springhill Meteor Observatory of the National Research Council, Ottawa, Canada. Main building, with photographic observing station on the roof, appears to upper right of center. Visual observing station is in far upper right. Transmitting and receiving aerials for IGY meteor radar system appear in the foreground and left background, respectively. This station is situated 20 miles south of Ottawa, at latitude $45^{\circ} 12' N$, longitude $75^{\circ} 28' W$ and is manned by a combined team from the National Research Council and the Dominion Observatory. It is listed as "Ottawa No. 1" in the tables.

THE VISUAL METEOR PROGRAM OF THE IGY

Bulletin No. 1

December 1957

Peter M. Millman, National Research Council, Ottawa
and
Miriam S. Burland, Dominion Observatory, Ottawa

As announced earlier in the "Journal of the Royal Astronomical Society of Canada" [1] and in "Sky and Telescope" [2], a special visual meteor program has been organized in Ottawa to operate for the duration of the International Geophysical Year. The purpose of this program is to provide statistics relative to the numbers of visual meteors encountered by the earth and to the distribution of their luminosities, or sizes. The visual data will be correlated with radar data, recorded at five locations in Canada on a round-the-clock basis throughout the IGY.

It is planned to publish the results of both the visual and radar meteor programs in the scientific literature. However, in a statistical investigation of this type, significant conclusions cannot be made until all the observational data have been reduced and analyzed. This will, of necessity, be some time after the close of the IGY.

It is felt that those contributing to the program would like to be kept informed of progress and, to this end, short progress reports and brief notes will appear from time to time in both the "Journal of the Royal Astronomical Society of Canada" and in "Sky and Telescope". To give a more detailed report of progress than is possible in the pages of these Journals, we propose to issue Bulletins, of which this is the first. The Bulletins will be circulated to all observers working actively in the visual meteor program and will contain a summary of all observations and preliminary results, when these are available.

The response to the request for visual meteor observers has been very good. Observations have been received from many stations in Canada and the United States and from a number of other countries. It is also gratifying to record that we have visual meteor records from the southern hemisphere. Observations have now reached us from the following countries:

Brazil (4)	Japan (4)
Canada (22)	Puerto Rico (2)
England (1)	South Africa (2)
India (1)	Switzerland (1)
Jamaica (1)	United States (120)

The figures in brackets refer to the numbers of reporting stations.

In Table 1 are listed all the stations from which results were received at the Meteor Centre in Ottawa, prior to October 15, 1957. These stations number 130. They have been listed alphabetically and given serial numbers for use in reference. The number of nights on which observations were carried out is listed next, followed by the total number of ten-minute periods, then the observed number of meteors, and last, the average number of observers (including time-keeper) working at one time. A grand total of 18,885 meteors has been recorded in 8743 ten-minute periods. This gives an overall average hourly meteor rate of 13. This figure in itself has no particular significance without a more detailed analysis, as all rates in this program are group counts and the sizes of the groups vary.

In Table 2 are listed the names of all those who have taken part in these observations — 367 individuals. We have attempted to make this listing as accurate as possible but a few errors in proper names may be present. The authors would appreciate being informed of any errors found so that these may be corrected in future publications.

Among the groups, Oklahoma City, New York No. 4, Ottawa No. 1, Pueblo No. 1, and Regina, have all observed for more than 50 hours (300 10-minute periods). Among the single observers, Des Plaines, Lodi No. 1, Portsmouth, and Pittsburg have observed for more than 25 hours (150 10-minute periods).

We take this opportunity to thank all observers for their contribution to this investigation. Without this help from volunteers, the visual meteor program would not exist. It is hoped that the present interest will be maintained throughout the IGY.

All correspondence on this program has been handled by Mrs N. Weston assisted by Miss D. Chambers, Miss E. Hutchinson, and Mrs A. Rothwell. Miss M. Baker compiled the tables.

References

1. Millman, P.M., J. Roy. Astron. Soc. Can., Vol. 50, p. 217, 1956; Vol. 51, p. 263, 1957
2. Millman, P.M., Sky and Telescope, Vol. 16, p. 317, 1957

TABLE 1

SUMMARY OF OBSERVATIONS RECEIVED UP TO OCTOBER 15, 1957,
ON THE SPECIAL IGY VISUAL METEOR PROGRAM

Location	Nights	Ten-Minute Periods	Meteors Recorded	Average No. of Observers
1. Ainsworth, Iowa	5	30	22	1
2. Algonquin Park, Ont.	5	30	19	2
3. Atlanta, Ga. No. 1	3	18	9	1
4. Atlanta, Ga. No. 2	12	112	146	1
5. Atlanta, Ga. No. 3	2	13	13	1
6. Baltimore, Md.	7	46	78	1
7. Beach Haven, N.J.	2	18	23	1
8. Bethel, Vt.	8	57	56	1
9. Bexleyheath, England	4	26	24	2
10. Blairsden, Cal.	2	41	136	4
11. Boise, Idaho	15	110	277	2
12. Brewer, Me.	1	6	10	1
13. Bronx, N.Y.C., N.Y.	1	15	62	1
14. Brooklyn, N.Y. No. 1	3	39	82	2
15. Brooklyn, N.Y. No. 2	1	20	44	5
16. Brunswick, Ohio	8	54	34	1
17. Burlington, Vt.	4	24	34	1
18. Caguas, Puerto Rico	4	57	299	1
19. Caney, Kansas	4	37	73	1
20. Cape Elizabeth, Me.	1	6	14	1
21. Cedarhurst, N.Y.	21	136	82	1
22. Centreport, Penn.	7	70	135	2
23. Chester, Penn.	1	6	5	1
24. Chicago, Ill. No. 1	7	49	59	2
25. Chicago, Ill. No. 2	4	56	71	3
26. Clarkston, Wash.	2	12	65	3
27. Clayton, Me.	4	37	27	1
28. Cleveland Hts., Ohio	1	6	13	1
29. Columbus, Ohio No. 1	3	18	28	2
30. Columbus, Ohio No. 2	7	83	127	2

Location	Nights	Ten-Minute Periods	Meteors Recorded	Average No. of Observers
31. Crockett, Texas	1	33	68	2
32. Dallas, Texas No. 1	11	92	218	1
33. Dallas, Texas No. 2	3	71	249	4
34. Des Moines, Iowa	4	43	42	1
35. Des Plaines, Ill.	26	305	430	1
36. Durham, N.C.	4	33	19	1
37. Dyer, Ind.	3	33	118	1
38. Edmonton, Alta. No. 1	4	26	44	4
39. Edmonton, Alta. No. 2	4	25	179	5
40. Elyria, Ohio	4	30	33	2
41. Emporium, Penn.	15	101	172	3
42. Ferndale, N.Y.	5	36	13	1
43. Fort St. John, B.C.	9	50	24	1
44. Fort Wayne, Ind. No. 1	13	72	109	1
45. Fort Wayne, Ind. No. 2	6	63	29	1
46. Franklin Park, Ill.	7	44	1	1
47. Great Neck, L.I., N.Y.	1	6	25	1
48. Greenwich, Conn.	3	24	24	4
49. Guayama, Puerto Rico	17	183	37	4
50. Hamilton, Ont.	5	50	80	3
51. Harlan, Iowa	9	70	81	1
52. Hayward, Wis.	6	73	130	1
53. Hettinger, N.D.	4	33	24	2
54. Holgate, Ohio	9	56	44	1
55. Hopewell, N.J.	7	52	82	1
56. Ions, Ohio	6	80	120	2
57. Islip Terrace, N.Y.	20	128	44	1
58. Keokuk, Iowa	2	41	118	2
59. Kingston, Jamaica	4	27	38	3
60. Ladysmith, Que.	5	41	84	1
61. Lodi, Cal. No. 1	21	262	571	1
62. Lodi, Cal. No. 2	4	47	68	1
63. Los Angeles, Cal.	24	143	273	1
64. Loveland, Colo.	5	37	60	1
65. Lucerne, Switzerland	6	73	153	1

Location	Nights	Ten-Minute Periods	Meteors Recorded	Average No. of Observers
66. Manhattan Beach, Cal.	3	25	12	1
67. Miamsburg, Ohio	2	23	54	1
68. Milford, Conn.	3	18	154	1
69. Minneapolis, Minn. No. 1	13	83	103	2
70. Minneapolis, Minn. No. 2	1	16	85	4
71. Montgomery, Ala.	3	11	43	1
72. Montreal, Que.	5	66	103	5
73. Moose Jaw, Sask.	7	62	184	3
74. Morton Grove, Ill.	8	68	124	1
75. Mt. Palomar, Cal.	2	12	62	1
76. Nassau County, L.I., N.Y. No. 1	1	6	35	1
77. Nassau County, L.I., N.Y. No. 2	1	6	30	1
78. Newark, N.J.	1	31	57	2
79. Newark, Ohio	10	127	215	5
80. New Brunswick, N.J.	6	35	11	2
81. New Cumberland, Penn.	1	7	7	2
82. New Milford, N.J.	8	71	146	2
83. New York, N.Y. No. 1	1	3	25	1
84. New York, N.Y. No. 2	1	24	65	1
85. New York, N.Y. No. 3	5	54	75	3
86. New York, N.Y. No. 4	35	415	1577	2
87. New York, N.Y. No. 5	1	24	50	1
88. New York, N.Y. No. 6	1	15	64	1
89. North Little Rock, Ark.	1	7	4	1
90. Oakville, Ont.	7	86	290	2
91. Oildale, Cal.	2	20	83	2
92. Oklahoma City, Okla.	25	659	2867	2
93. Omaha, Neb.	3	27	58	2
94. Ottawa, Ont. No. 1	11	380	1327	9
95. Ottawa, Ont. No. 2	1	15	23	2
96. Phoenix, Arizona	2	14	14	1
97. Pine Bush, N.Y.	4	23	40	2
98. Pittsburg, Penn.	23	161	104	1
99. Portsmouth, Vir.	27	162	343	1
100. Poughkeepsie, N.Y.	9	37	12	1

Location	Nights	Ten-Minute Periods	Meteors Recorded	Average No. of Observers
101. Prince George, B.C.	2	12	16	1
102. Pueblo, Colo. No. 1	15	376	705	1
103. Pueblo, Colo. No. 2	8	137	198	1
104. Regina, Sask.	48	375	561	3
105. Rosthern Rural Obs., Sask.	4	71	21	1
106. St. Mary's, Ohio	1	17	29	2
107. Sacramento, Cal.	6	89	116	1
108. Salem, Oregon	10	138	387	5
109. San Diego, Cal.	21	124	79	1
110. Sandy Point, Me.	4	31	58	1
111. San Jose, Cal.	1	22	500	6
112. Sarles, N.D.	4	25	59	2
113. Scranton, Penn. No. 1	4	24	28	1
114. Scranton, Penn. No. 2	5	144	280	1
115. Shediac, N.B. (St. Lambert, Que.)	2	15	20	1
116. Shelby, Ohio	8	39	54	1
117. Skokie, Ill.	10	126	83	2
118. South Gloucester, Ont.	2	20	295	7
119. Stone Mountain, Ga.	2	25	24	1
120. Teaneck, N.J.	4	30	68	1
121. Toronto, Ont.	1	6	2	4
122. Vancouver, B.C.	9	70	472	4
123. Victoria, B.C.	2	13	1	1
124. Villa Rica, Ga.	2	12	6	1
125. West Bablon, N.Y.	1	3	20	1
126. Western Springs, Ill.	7	193	418	6
127. West Nanticoke, Penn.	1	6	1	1
128. Wichita, Kansas	3	24	37	1
129. Wilmette, Ill.	2	26	19	4
130. Woonsocket, R.I.	7	42	11	1
GRAND TOTAL		8743	18,885	

TABLE 2

PERSONNEL WHO HAVE MADE OBSERVATIONS
ON THE SPECIAL IGY PROGRAM

LOCATION	NAME(S)
1. Ainsworth, Iowa	S.A. Coon
2. Algonquin Park, Ont.	L. Mill M.H. Mill
3. Atlanta, Ga. No. 1	H.M. Light
4. Atlanta, Ga. No. 2	M. Rushton
5. Atlanta, Ga. No. 3	D. Cravens
6. Baltimore, Md.	K. Delano
7. Beach Haven, N.J.	D. Carey
8. Bethel, Vt.	R. Clifford
9. Bexleyheath, England	K. Herbert B. Sweeney A. Weekes
	B. Wiltshire
10. Blairsden, Cal.	Carolyn E. Case J. Case
	Chris M. Dahlgren M. Doler (Miss)
	J.A. Russell
11. Boise, Idaho	B. Brewer T. Cochrane R. Mattson
	L. Moulton (Miss)
12. Brewer, Me.	F. Sawtelle
13. Bronx, N.Y.C., N.Y.	J. Morrow
14. Brooklyn, N.Y. No. 1	R. Bell R. Shaw
15. Brooklyn, N.Y. No. 2	J. Charves M. Charves M. Turner
	W. Turner H. Voigt
16. Brunswick, Ohio	H. Decker
17. Burlington, Vt.	J. Bailey
18. Caguas, Puerto Rico	L. Cruz J. Jimenez A. Nieves
	G. Ruiz
19. Caney, Kansas	P. Holt J. Miller
20. Cape Elizabeth, Me.	R. Dole
21. Cedarhurst, N.Y.	E. Heinhold
22. Centreport, Penn.	C. Henn R. Machemer
23. Chester, Penn.	G. Nagy
24. Chicago, Ill. No. 1	A. Blank R. Koczor
25. Chicago, Ill. No. 2	D. Fretland G. Gunlock G. Tymitz

<u>LOCATION</u>	<u>NAME(S)</u>		
26. Clarkston, Wash.	P. Ingram	F. Mosher	H. Rolph
27. Clayton, Me.	D. Megginson		
28. Cleveland Hts., Ohio	J. Breckinridge		
29. Columbus, Ohio No. 1	L. Oaks	Belle Rettman	B. Weimer
30. Columbus, Ohio No. 2	T. Boldman (Jr.)	C. Pickard	
31. Crockett, Texas	A. Collins	T. Robinson	
32. Dallas, Texas No. 1	J. McCoy		
33. Dallas, Texas No. 2	R. Althausen	F. Berkman	G. Colby
	J. Flatguard	J. Goode	D. Lambert
	D. Pearle	R. Perkinson	R. Strong
34. Des Moines, Iowa	T. Morehead		
35. Des Plaines, Ill.	K. Davenport	G. Rippen	
36. Durham, N.C.	D. Seogroves		
37. Dyer, Ind.	J. Berg		
38. Edmonton, Alta. No. 1	D. Henry	P. Kehoe	F. Loehde
	J. Mandrusiak	D. Morrison	
39. Edmonton, Alta. No. 2	R. Allin	G. Marliss	D. Marven
	E. Milton	L. Sterling (Miss)	
40. Elyria, Ohio	D. Diedrich	G. Diedrich	Paul Diedrich
	P. Place		
41. Emporium, Penn.	E. Benyon	C. Bloomley	J. Deitweiler
	Mr. Peterson	Mrs. Peterson	M. Ramarge
	Dr. Regester	Mrs. Regester	D. Regester
	G. Signer	J. Strycula	
42. Ferndale, N.Y.	J.S. Levine		
43. Fort St. John, B.C.	R.W. Brown		
44. Fort Wayne, Ind. No. 1	J. Phillipp		
45. Fort Wayne, Ind. No. 2	D. Nelson		
46. Franklin Park, Ill.	A. Demos		
47. Great Neck, L.I.	J. Rider		
48. Greenwich, Conn.	J. Halloran	M. Halloran	R. Nizolek
	G. Shea	J. Shershir	
49. Guayama, Puerto Rico	R.M. Baquero	R. Orliz	C. Sanchez
	C. Santiago	G. Vicil	
50. Hamilton, Ont.	S. Buntain	J.G. Craig	R. Nielson
	L. Price	D. Powis	L. Powis
	J.A. Winger		
51. Harlan, Iowa	K. Johnson		
52. Hayward, Wis.	K. Davenport		
53. Hettinger, N.D.	E. Hilts	J. Hilts	
54. Holgate, Ohio	J. Rush		
55. Hopewell, N.J.	F. Manasek		

<u>LOCATION</u>	<u>NAME(S)</u>		
56. Ions, Ohio	D. Hansen	G. Miller	
57. Islip Terrace, N.Y.	R. Rowland	W. Webster	
58. Keokuk, Iowa	J. Maxwell	S.R. Sinotte	
59. Kingston, Jamaica	D. Bardens	E.C. Melville	M. Schleifer
	D. Stanley	L.A. Vincenz	
60. Ladysmith, Que.	W.A. Gault		
61. Lodi, Cal. No. 1	R. Birch		
62. Lodi, Cal. No. 2	P. Sheehan		
63. Los Angeles, Cal.	T. Quinn		
64. Loveland, Colo.	P.R. Moulton		
65. Lucerne, Switzerland	Dr. E. Roth		
66. Manhattan Beach, Cal.	B. Brown		
67. Miamsburg, Ohio	K. Woodard		
68. Milford, Conn.	H. Maddocks		
69. Minneapolis, Minn. No. 1	R.H. Scrimshaw	M. Weidner	
70. Minneapolis, Minn. No. 2	G. Edwards	C. Feirun	J. Gaustad
	N. Mess		
71. Montgomery, Ala.	J. Connell		
72. Montreal, Que.	E.E. Bridgen	A.L. Burran	W. Clark
	E. Danson	L. Gomberg	C.M. Good
	B. Lapin (Mrs.)	A. Laur	M. Mendelssohn
	S. Nathanson	T. Noseworthy	R. Sundell
	S.M. Sundell	W. Warren	G. Wedge
	D. Yane (Mrs.)	K. Zorgo (Mrs.)	I.K. Williamson (Miss)
73. Moose Jaw, Sask.	B. Bell	D. Birley	E. Freidin
	L. Larsen	G. Poulton	L. Stall
74. Morton Grove, Ill.	M. Gear	R. Jornd	
75. Mt. Palomar, Cal.	D. Devorkin	T. Quinn	
76. Nassau County, L.I., N.Y. No. 1	C. Kormac		
77. Nassau County, L.I., N.Y. No. 2	R. Marker		
78. Newark, N.J.	A. Krammar	C. Krammar	
79. Newark, Ohio	G. Dell	D. Gelfer	K. Gregg
	J. Knechtges	B. McKim (Miss)	M. Morgan (Miss)
	M. O'Brien	B. Reynolds	D. Smith
80. New Brunswick, N.J.	C. Heinlein (Miss)	D. Heinlein	E. Heinlein
81. New Cumberland, Penn.	G. Zaritsky	R. Zaritsky	
82. New Milford, N.J.	R. Brown	A. Dominski	
83. New York, N.Y. No. 1	J. Herman		
84. New York, N.Y. No. 2	P. Mechensie		
85. New York, N.Y. No. 3	B. Edelhertz	R. Lee	T. Mooney
	R. Syvertsen		

<u>LOCATION</u>	<u>NAME(S)</u>		
86. New York, N.Y. No. 4	A. Barta E. Cravec S. Flack C. Hein A. Katz (Miss) A. Pearlmutter E. Sacha (Miss) A. Ullmann	R. Bell E. DeGenaro C. Frederick G. Hein S. Maran F.J. Price R. Syversten H. Ward	M. Churns (Miss) B. Edelhertz M. Haas M. Jacobs T. Mooney A. Protas C. Usakowski (Miss) K. Weitzenhoffer
87. New York, N.Y. No. 5	S. Schroden		
88. New York, N.Y. No. 6	P. Sherman		
89. North Little Rock, Ark.	D.P. Murphy		
90. Oakville, Ont.	A. Bowker	N. Bowker	P. Bowker
91. Oildale, Cal.	C.R. Haysheff	T. Smith	
92. Oklahoma City, Okla.	A. Collins	T. Robinson	
93. Omaha, Neb.	T. Dwyer	P. Kristy	C. Moroson
94. Ottawa, Ont. No. 1	R. Armstrong D. Chambers (Miss) W.A. Gault P. Ivay F. MacCormack (Mrs.) J. Rottenberg M. Steele (Miss)	M. Baker (Miss) M. Dolman M. Henderson (Mrs.) J. LeFrancois S.A. Mott L. Smith J. Stewart (Miss)	M.S. Burland (Miss) R. Ebisuzaki (Miss) E. Hutchinson (Miss) J. L. Locke B. Pasicov S. St. Jean (Miss) N. Weston (Mrs.)
95. Ottawa, Ont. No. 2	W.A. Gault	L. Pushee	
96. Phoenix, Arizona	D. Cope		
97. Pine Bush, N.Y.	T. Hlavac	E. Tress	
98. Pittsburg, Penn.	W.A. Fiebelman		
99. Portsmouth, Vir.	C. Rosekrans		
100. Poughkeepsie, N.Y.	T. Greer		
101. Prince George, B.C.	S. Howarth		
102. Pueblo, Colo. No. 1	G. Armstrong R. Schwab	J. Arnold M. Smith	D. Miller
103. Pueblo, Colo. No. 2	C. Laurence		
104. Regina, Sask.	G.J. Bahr J. Copithorne (Miss) K. Douglas D. Hallsworth J.V. Hodges J. Kowalchuk B. McLean J. Weinburger	G.S. Bahr Mr. Crafton D. Dunn Jean Hodges (Mrs.) A. Irwin S. Lipton K. Silzer M. Worel	B. Clipsham G.S. Cumming J. Dunn (Mrs.) J.C. Hodges A. Kernechuk E. Majden G. Thompson
105. Rosthern Rural Obs., Sask.	W. Epp		

<u>LOCATION</u>	<u>NAME(S)</u>		
106. St. Mary's, Ohio	J. Hertenstein	R. Suchland	
107. Sacramento, Cal.	M. Chiachi	J. York	
108. Salem, Oregon	C. Breithaupt (Miss) B.W. Christensen B. Kuper R. Straven K. Yarab P. Miscall	E. Breithaupt F.A. Christensen T. Rorick	J. Breithaupt A. Jones P. Straven
109. San Diego, Cal.			
110. Sandy Point, Me.			
111. San Jose, Cal.	S. Bienda J. Estruth J. Leppert	R. Cunningham G. Gardener R. Leppert	D. Del Grande S. Styczynski
112. Sarles, N.D.	J. Leppert		
113. Scranton, Penn. No. 1	J. Kosmo		
114. Scranton, Penn. No. 2	A. Vinzkov		
115. Shediac, N.B.	A.R. MacLennan		
116. Shelby, Ohio	D. Brown	J. Horner	
117. Skokie, Ill.	N. Cleary	M. Gear	W. Wise
118. South Gloucester, Ont.	W. Denis S.A. Mott D. Zackon D. Cravens	D. Fisher F.M. Taylor	W.A. Gault R. Watters
119. Stone Mountain, Ga.	D. Cravens		
120. Teaneck, N.J.	J. Shelby (Miss)		
121. Toronto, Ont.	G.A. Cooper R. Pearce P. Docherty D. Marson M. Taylor	L. Jewitt	M.A. Kamienski
122. Vancouver, B.C.	L.C. Brice W.F. Barber A. Cortez	N. Eisner G. Shearman J. Wilson	C. Hanna G. Smith
123. Victoria, B.C.			
124. Villa Rica, Ga.			
125. West Bablon, N.Y.			
126. Western Springs, Ill.	R. Barritt R. Rexford N. Solliday H. Humphries D. Solter M. Shakman R. Latour	L. Herche R. Rowe F. Surls	N. Rexford A. Smith
127. West Nanticoke, Penn.			
128. Wichita, Kansas			
129. Wilmette, Ill.			
130. Woonsocket, R.I.		R. Shakman	S. Shakman

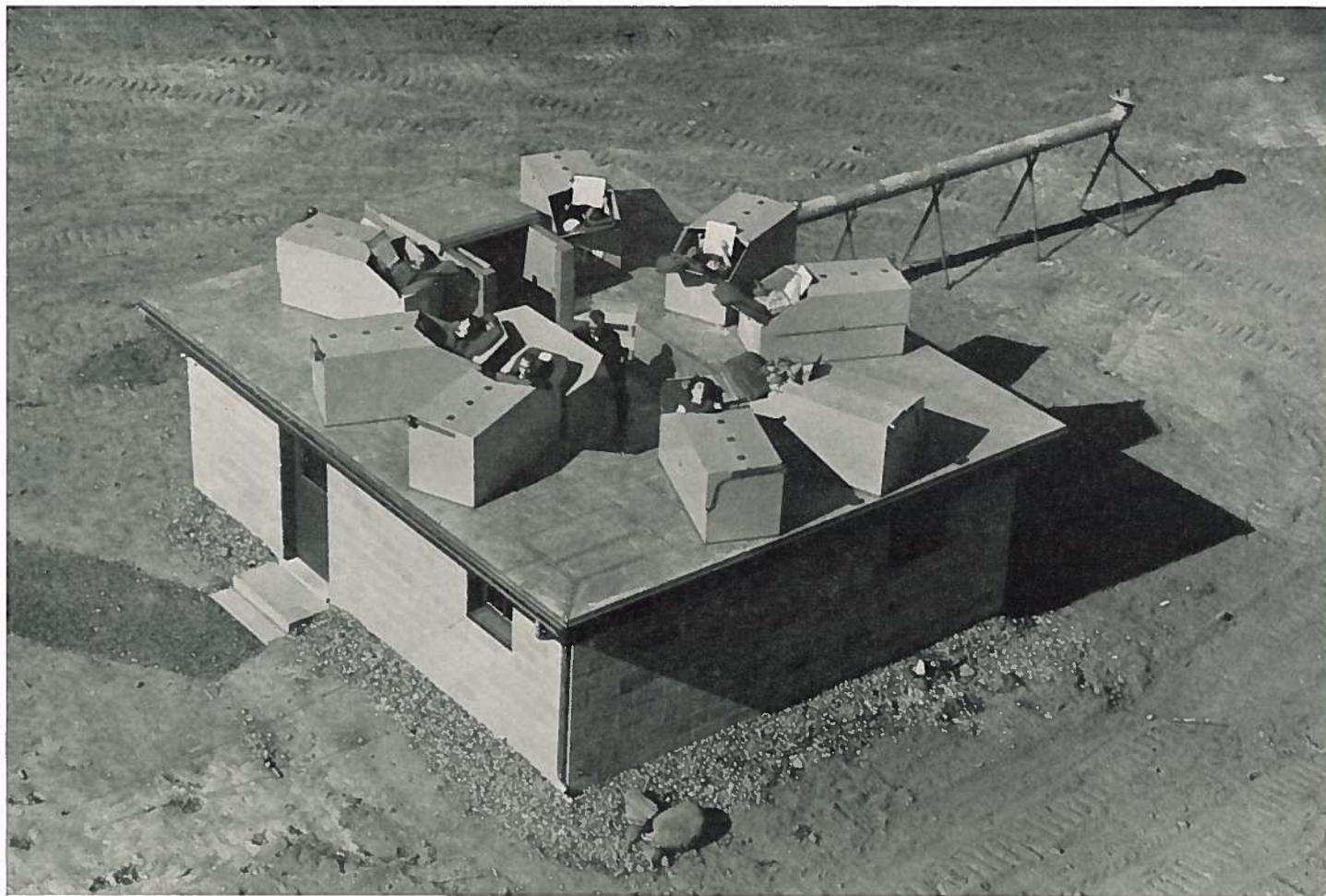


Plate II — Station for visual observation of meteors at Springhill. Eight observing positions cover the sky in a uniform pattern with the timekeeper's position at the center. An oil furnace provides heat in cold weather.