THE METHODS AND APPARATUS USED IN OBTAINING UPPER AIR OBSERVATIONS AT MOUNT WEATHER, VA.

By Dr. W. R. Blair.

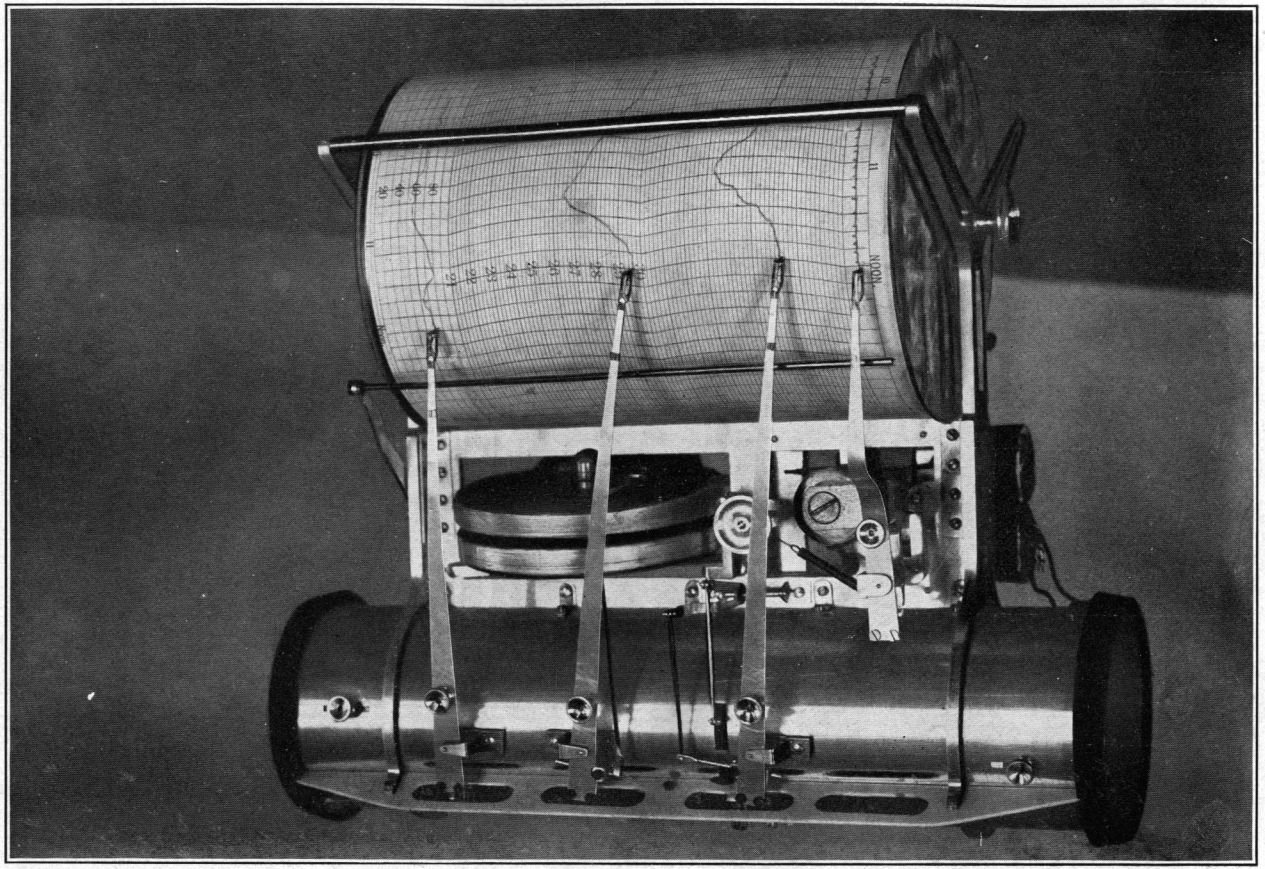
The observatory is equipped with both the Richard and the Marvin meteorographs. Most of the records for the three months given have been obtained with Richard instruments because of the fact that those of the Marvin type have been undergoing repairs and readjustments. The latter have not yet been tested and put in use since their return from the shop. The Marvin instruments have the four elements—pressure, temperature, humidity, and wind velocity—while the Richard instruments used have the first two of these elements only. Plates I and II show the meteorographs and the kind of records obtained by them. The same general principle obtains in these instruments, i. e., a cylinder rotated by clockwork, upon which the pens connected with their respective elements trace the changing conditions.

From the pressure trace, using the corrections found for the element by tests with standard instruments and surface conditions as observed at the time of flight, altitudes reached are computed. In a similar way, the upper air temperatures are determined from the temperature trace. Before and after a flight the meteorograph used is placed in a shelter with standardized instruments for the purpose of getting base lines from which to compute conditions at higher levels. As will be seen by the illustrations, frequent stops of from five to ten minutes are made on the way up and down so that the elements may have time to register accurately the condition at these levels. These stops make it possible to eliminate the errors due to sluggishness of elements and enable the observer to make frequent checks upon the time of the clock in the instrument, thus marking well the points at which accurate computation of the conditions aloft may be made. The accuracy of the final results is further secured, as above intimated, by frequent comparisons with standards of the elements of the instruments in use.

Plate IV shows the method of fastening the instrument into the kite, which is about to be launched.

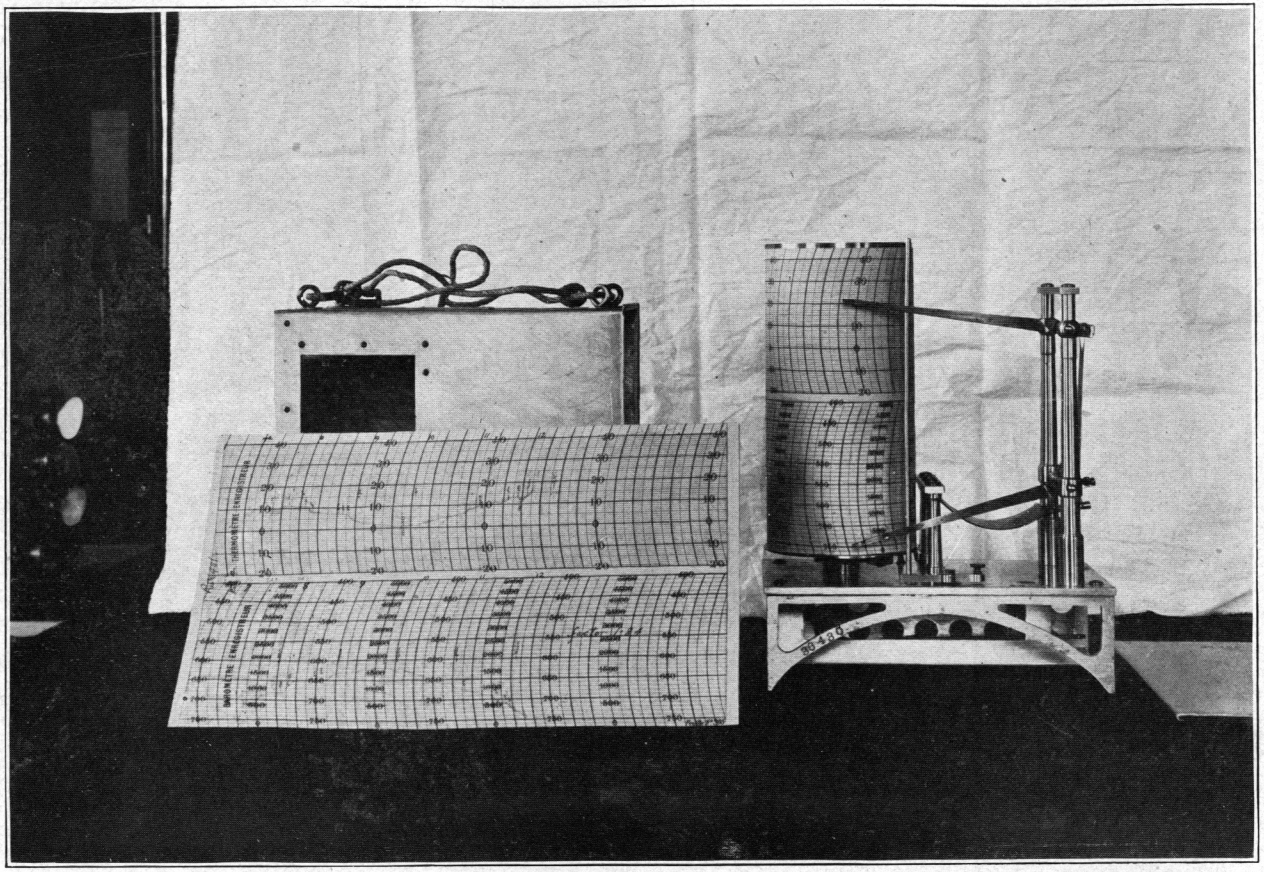
Various sizes of kites, all of essentially the Marvin-Hargrave type, have been used in the past three months. Plate V shows kites having lifting surfaces varying from 68 square feet (6.3 square meters)

Plate I.



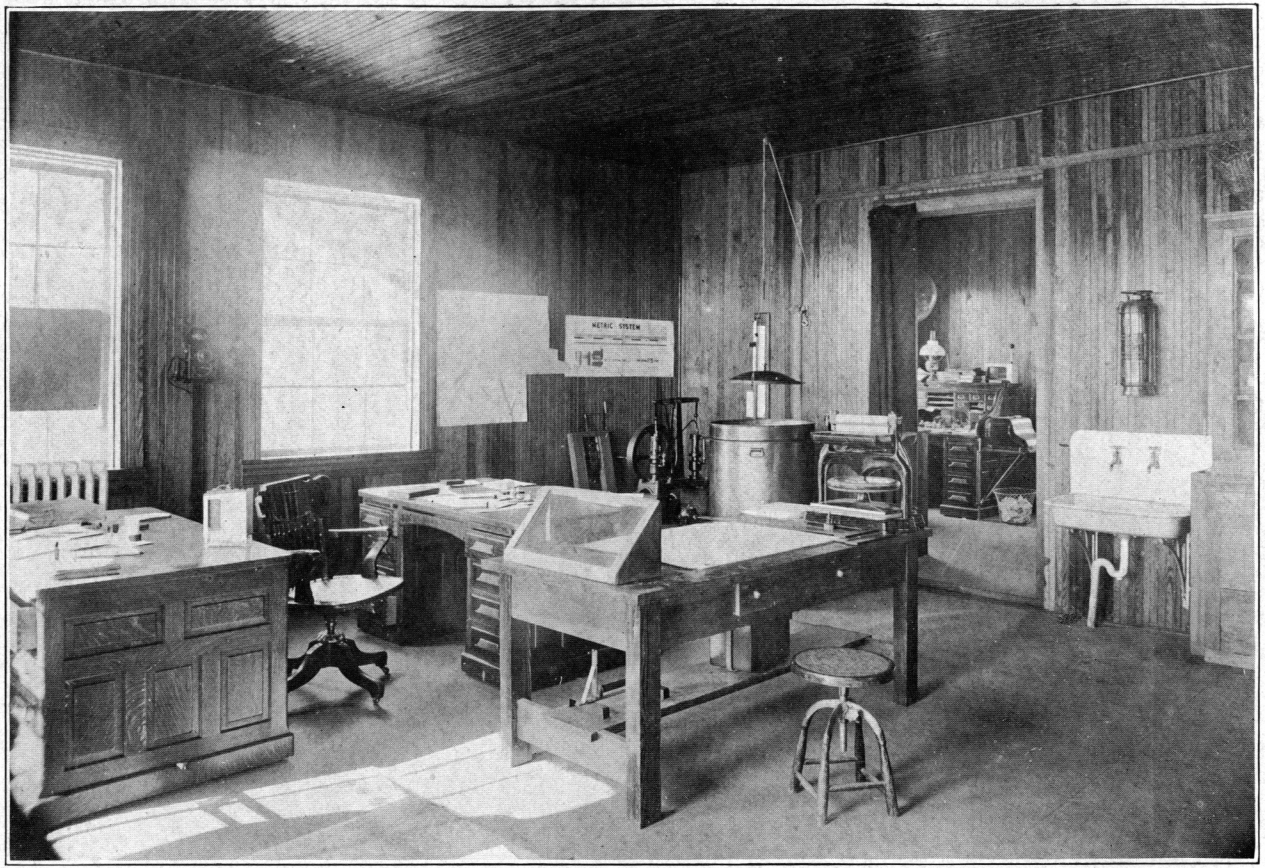
Marvin meteorograph and record sheet.

Plate II.



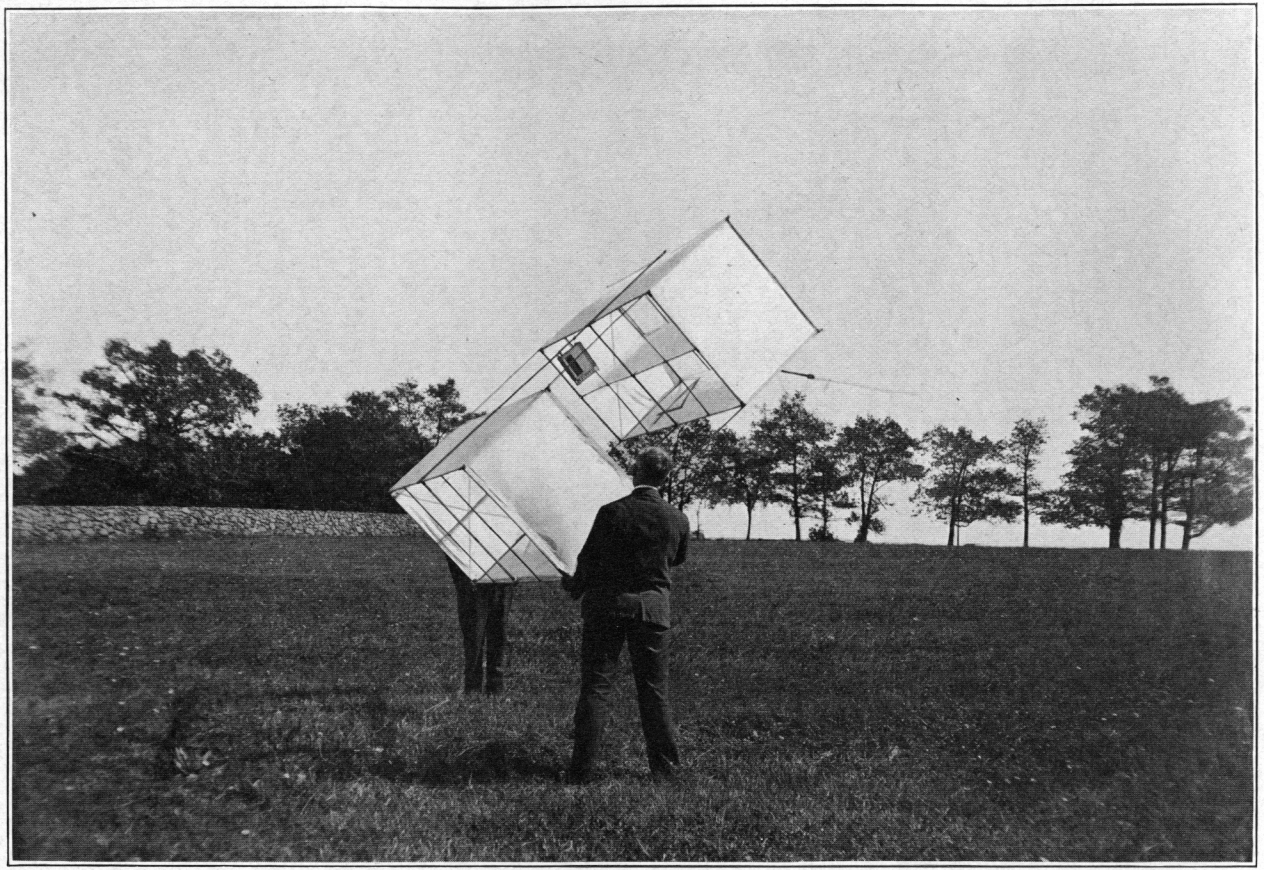
Richard meteorograph and record sheets.

Plate III.



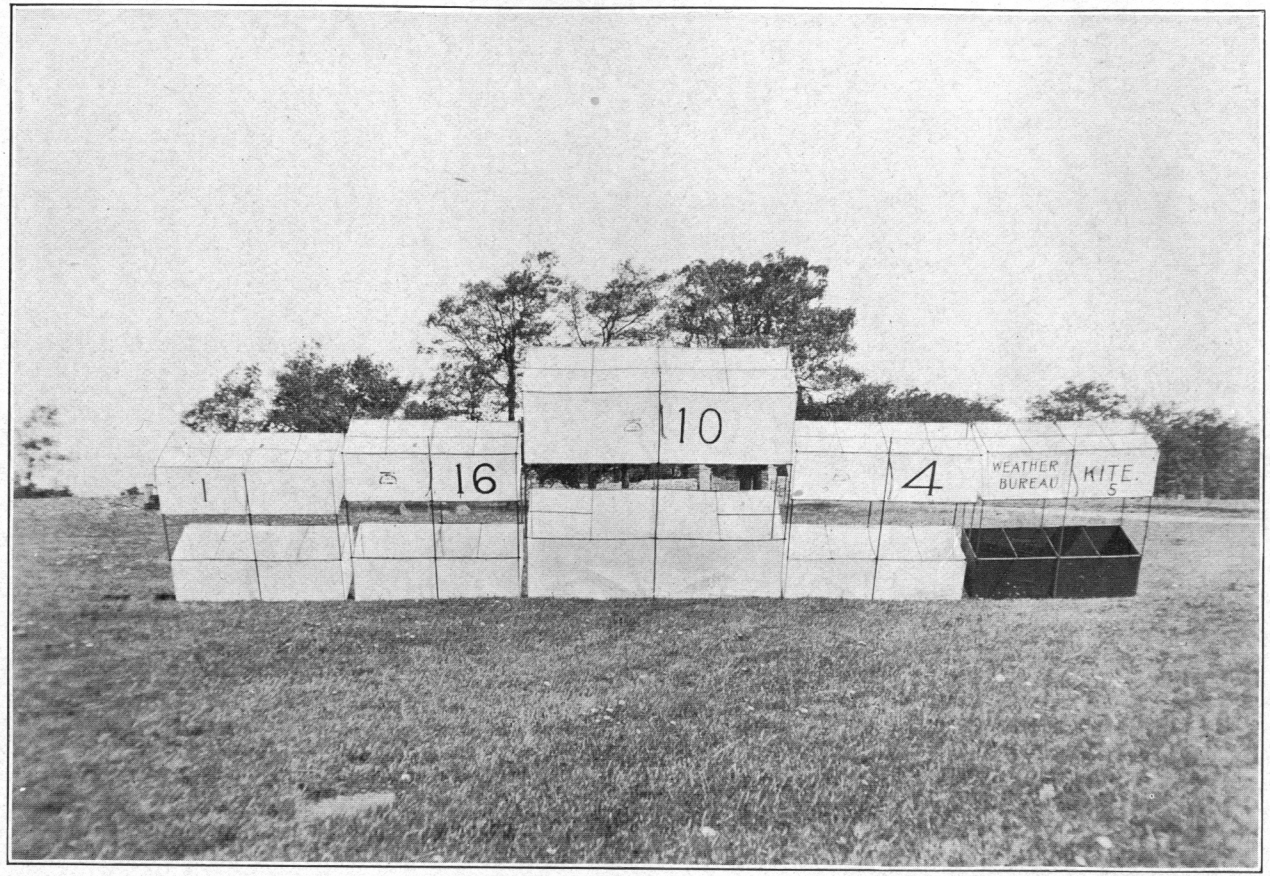
Interior of work room. Testing apparatus in corner.

Plate IV.



Position of meteorograph on kite about to be launched.

Plate V.



Various patterns of kites in use.

to 150 square feet (13.8 square meters), and varying in weight from 8½ to 14 pounds (3.8 to 6.4 kilograms). The following are the dimensions of a kite having a lifting surface of 68 square feet (6.3 square meters) and steering sail 22.8 square feet (2.1 square meters) in area:

Height	6 feet 8½ inches	204 centimeters.
Width	6 feet 5½ inches	197 centimeters.
Depth	2 feet 8½ inches	81 centimeters.
Weight	8½ pounds	3.8 kilograms.
Width of planes	2 feet 1¼ inches	64 centimeters.
Plane surface	2 feet 6 inches	76 centimeters.

There are five lifting planes and four steering. Kites numbered 5 and 16 have the above dimensions. Number 1 is like number 16, except that the space between the planes is 2 feet (61 centimeters) only. Number 4 has proportions somewhat similar to number 1, its height being the same as that of number 16, and its width 7 feet (213 centimeters). Number 10 has proportions somewhat similar to those of number 4. Another kite, not shown in the illustration, but one which proved very serviceable indeed as a light wind kite, is number 15, built on the plan of number 16, but having a lifting surface of 120 square feet (11.2 square meters) and weighing 12½ pounds (5.7 kilograms). The shorter kites take better angles in light winds than do the longer shaped ones, but are unsteady in winds over 25 miles per hour (11.2 meters per second).

Experiments are being made with other shapes and sizes of kites. Of these number 12, built after the pattern of the Kousnetzow kite and 4 feet 9 inches (144 centimeters) high by 4 feet 6 inches (137 centimeters) wide, has done well as a secondary kite in winds under 20 miles per hour (8.9 meters per second). Smaller Marvin-Hargrave kites in which the proportion of the steering sail to the lifting sail is greater than in number 16 have been found to behave well in winds up to 40 miles per hour (18 meters per second), and it is thought they can be used in still higher winds.

Plate VI shows the interior of the kite and balloon shed. There are 16 kites in all, experimental types being shown on the right, the others on the left.

The reel, Plate VII, carrying the line upon which the kites are flown is driven by a 3-horsepower (2.4 kilowatts) motor. The drum now in use on the reel is made of forged steel and has the dimensions shown in fig. 1, which is a sketch of its cross section. This drum is capable of carrying about 40,000 feet (12,192 meters) of piano wire line, and is loaded about as follows:

Length.		Diameter.	
Feet.	*Meters.*	*Inch.*	*Millimeters.*
2,500	762	.026	.66
5,000	1,524	.028	.71
12,000	3,658	.032	.81
20,500	6,248	.036	.91

For the purpose of attaching them to the line, the kites are provided with an elastic bridle, arranged as shown in figure 2. This arrangement not only protects the line from sudden jerks because of the elasticity

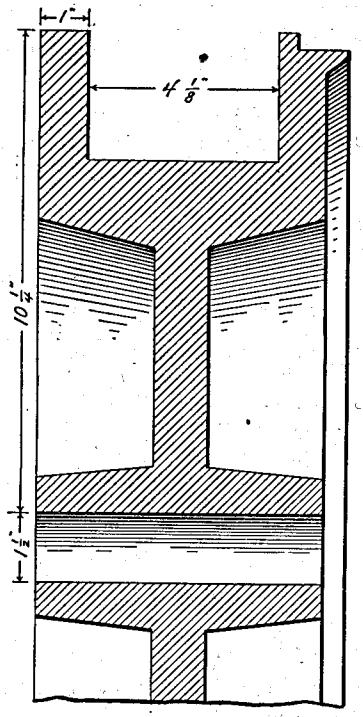
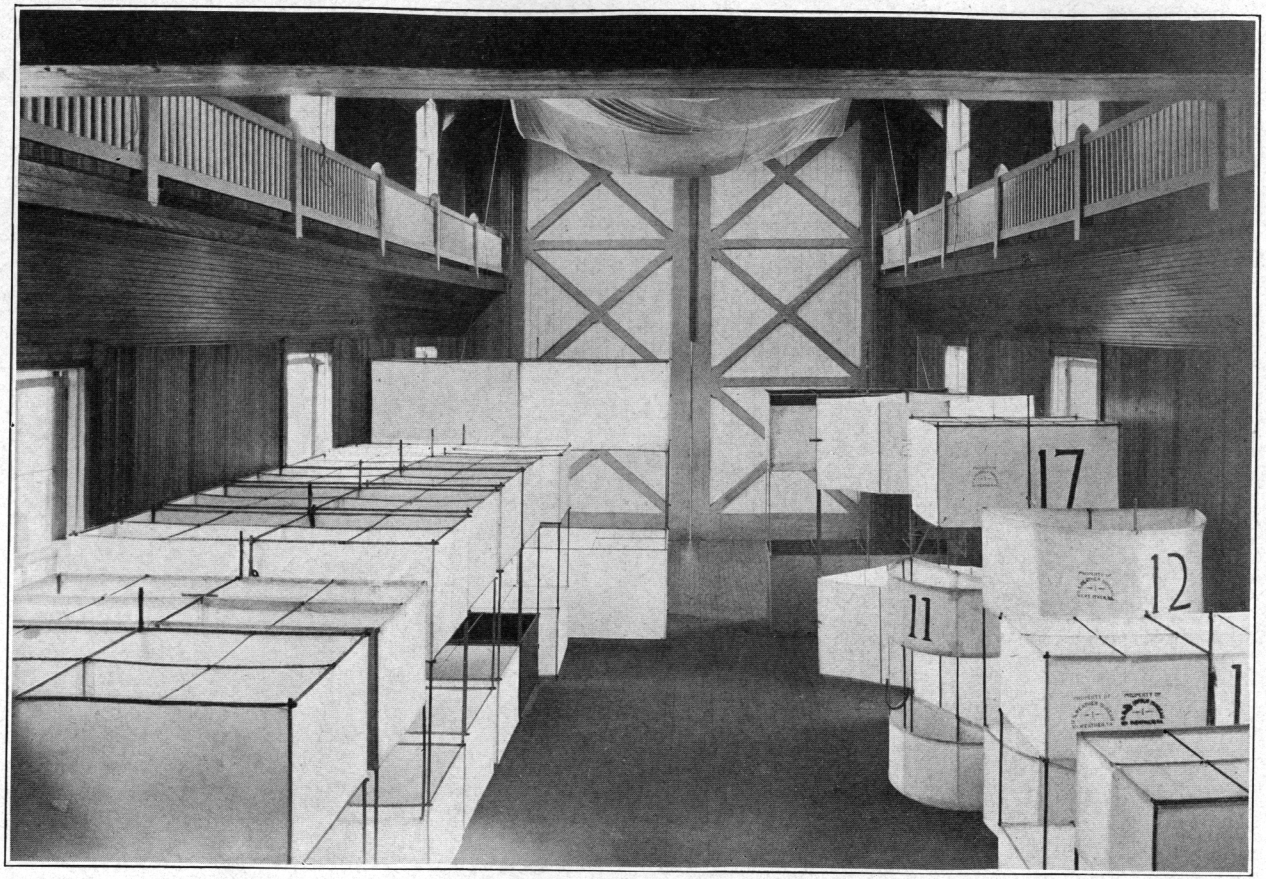


FIG. 1.—Cross section of drum.

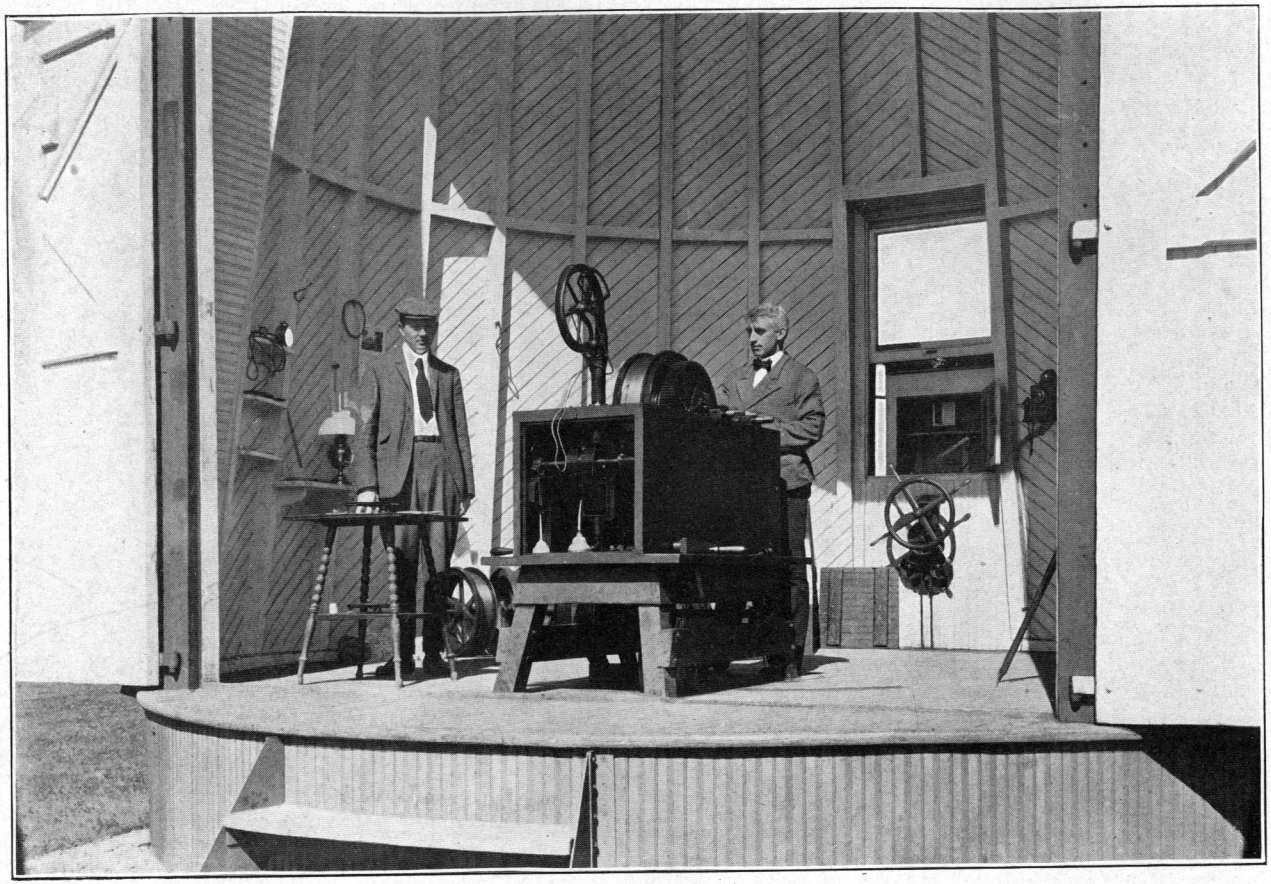
of the rubber, but as a puff of wind stretches the rubber to a considerable extent (determined by the proportions of the bridle), the point of application of the pull is transferred along the main rib to points farther up, the kite takes a smaller angle to the wind, and its pull is less than it would otherwise be. The head kite, which carries the instrument, is fastened directly to the end of the wire. Secondary kites are attached to the wire by means of cords about 100 feet (30.5 meters) in length.

Plate VI.



Kite storage room.

Plate VII.

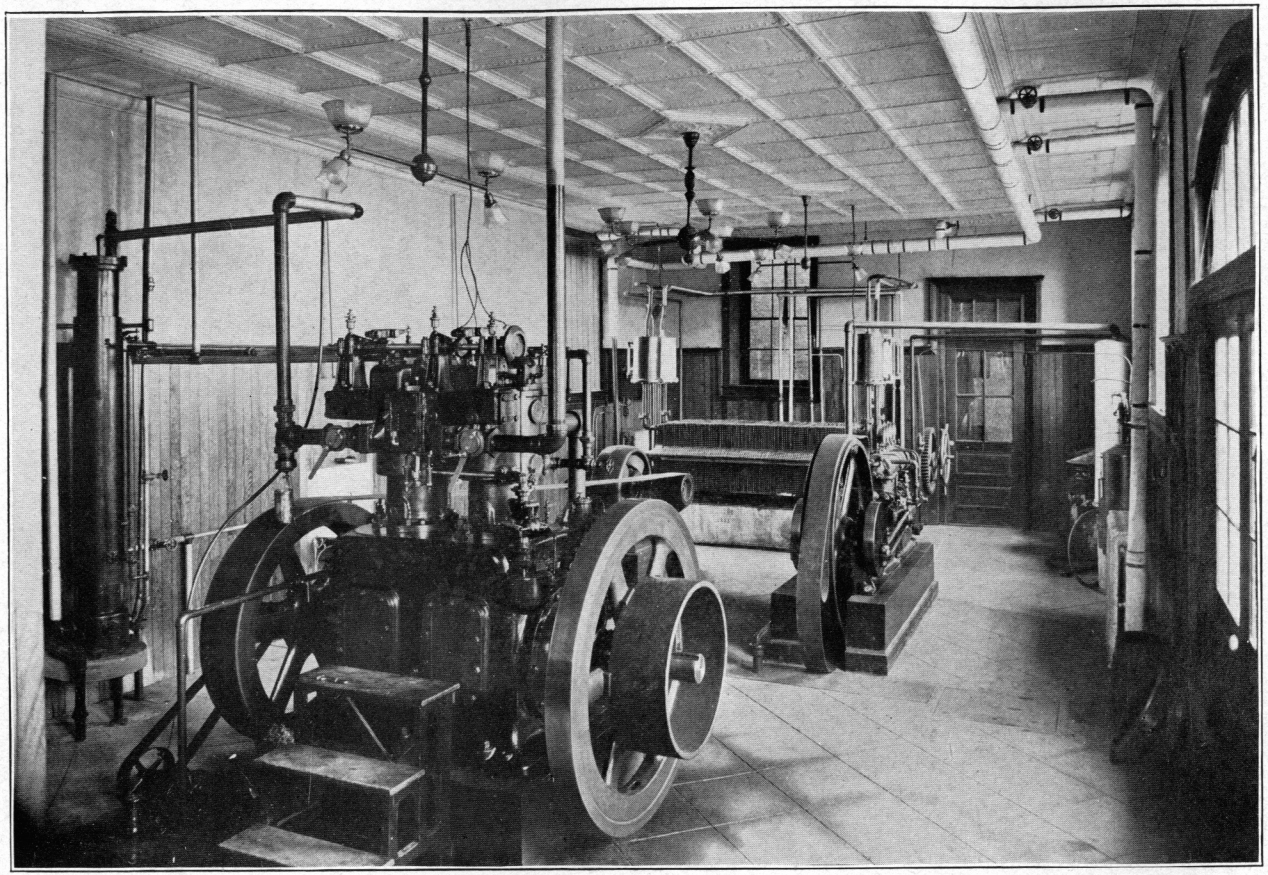


Interior of kite house, showing kite reel.

Plate VIII.

Kite field. Power house on left.

Plate IX.



Interior of power house, engine, dynamo, electrolyser, and compressor.

For the successful manipulation of kites—in starting, during the flight, and in landing—it is essential that the reel be in good running condition and completely under the control of the operator for any rate of speed from its maximum down. Unless the drum is heavy or improperly mounted there is seldom, if ever, need for reversing its rotation, the pull of the kite being sufficient for taking out wire in every case. It is probable that a thoroly satisfactory drum can not be made of cast iron. Two cast iron drums have broken at Mount Weather under the strain of about 20,000 feet (6,096 meters) of wire during the last three months, while the forged steel drum of somewhat similar dimensions has stood a test twice as severe with no apparent injury to

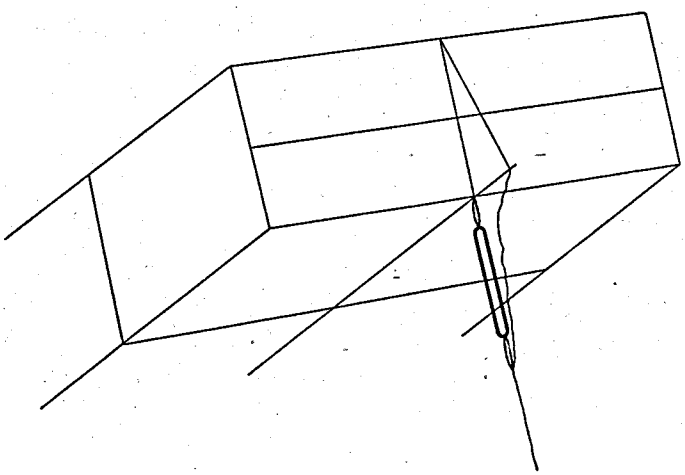


FIG. 2.—Method of attaching kite to line.

itself. The maximum speed at which it should be possible to reel in wire ought to closely approximate the wind velocity required to fly the kites used. This often makes it possible to start the kites when the surface wind is insufficient and to save both wire and kites in case they are becalmed during a flight. The maximum speed of the reel, 4.6 miles per hour (2.0 meters per second), has on one or two occasions been found insufficient, tho not seriously so; 8 or 9 miles per hour (3.5 or 4 meters per second) would be enough for any occasion which has so far arisen or is likely to arise. In addition to the necessary friction clutches for applying the power to the drum and controlling its speed, the reel is provided with an azimuth wheel over which the wire runs out in the direction required by the wind. Attached to this wheel are also devices from which may be read at any desired time the angle of

the wire at the reel and the length of wire out. These readings together with the angle of elevation of the head kite enable the observer, at any time during the flight, to know approximately the altitude at which his instrument is then recording the conditions, and serves as a rough check upon the barometric calculations of altitudes.

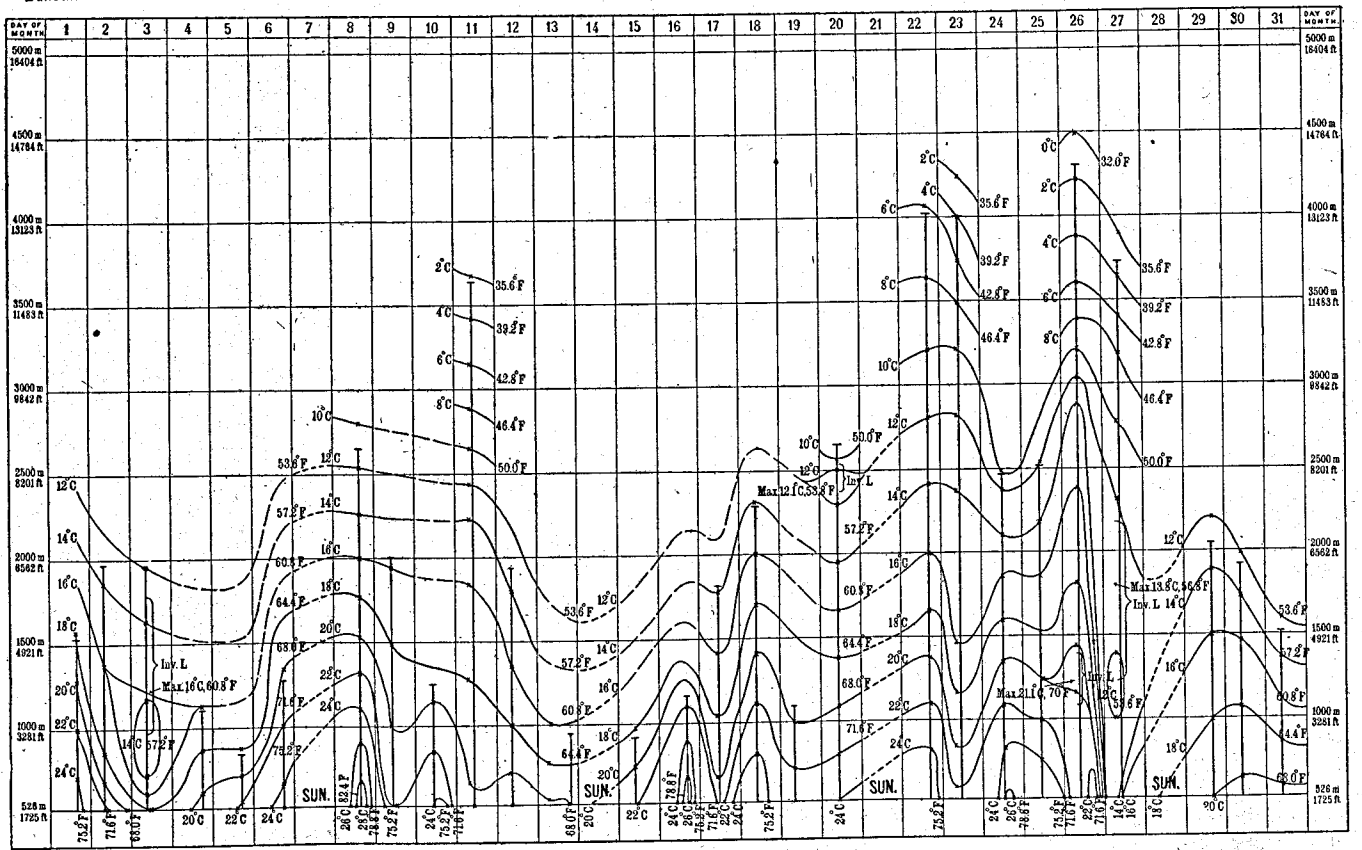
Besides the operator at the reel two men are needed for launching and landing the kites in the field and for making and recording observations at the reel. A man to be successful in the field must follow closely and be able to anticipate to some extent the kite's motion. He must decide and act almost simultaneously. The former qualification can usually be acquired by a reasonable amount of observation and experience. The acquisition of the latter in the same way is an expensive process on a kite field and can be done just as effectively by the men who can coach teams for almost any of our best college games.

During the past three months in which an average of three or four kites has been used daily, considerably less than the time of one man has been sufficient for the repairing of kites and the adding of three new kites to the previous equipment.

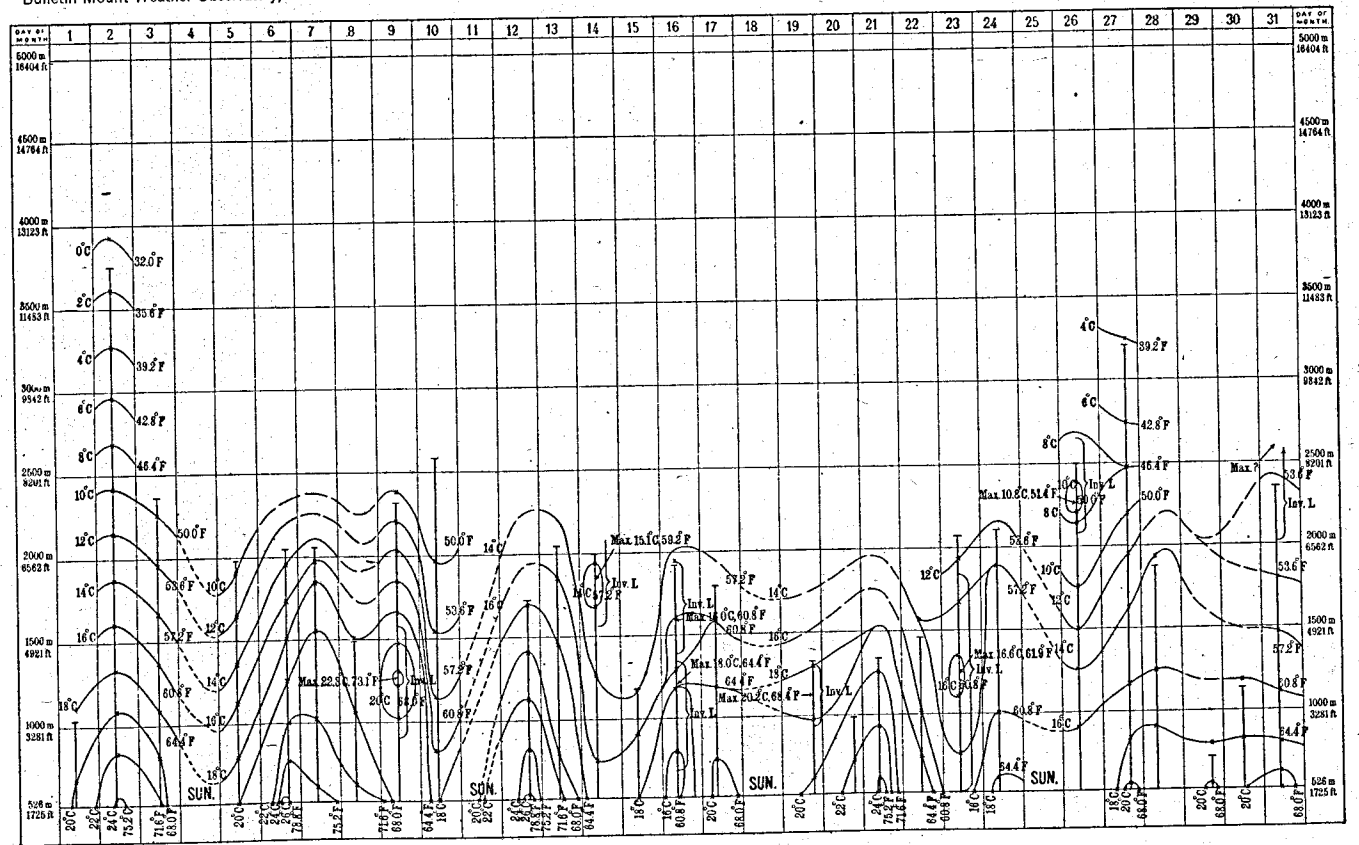
At the reel house are made continuous observations of the surface air pressure, temperature, humidity, wind direction and wind velocity during the flight. Clouds and weather conditions are observed. The amount and angle of wire out, the angle of elevation of the head kite, the number and lifting surfaces of kites out, and the hour at which levels are taken are noted.

The reel house is a circular tower mounted so that it can be rotated. Its double doors may thus be made to face in any direction, and this, together with the motion of the azimuth wheel, gives us perfect adaptation of the whole apparatus to the wind direction. An instrument shelter built onto the reel house just outside the window opposite the double doors, consequently always to the windward and well ventilated, serves to contain the standardized thermometers and the meteorographs which may be in process of comparison with them.

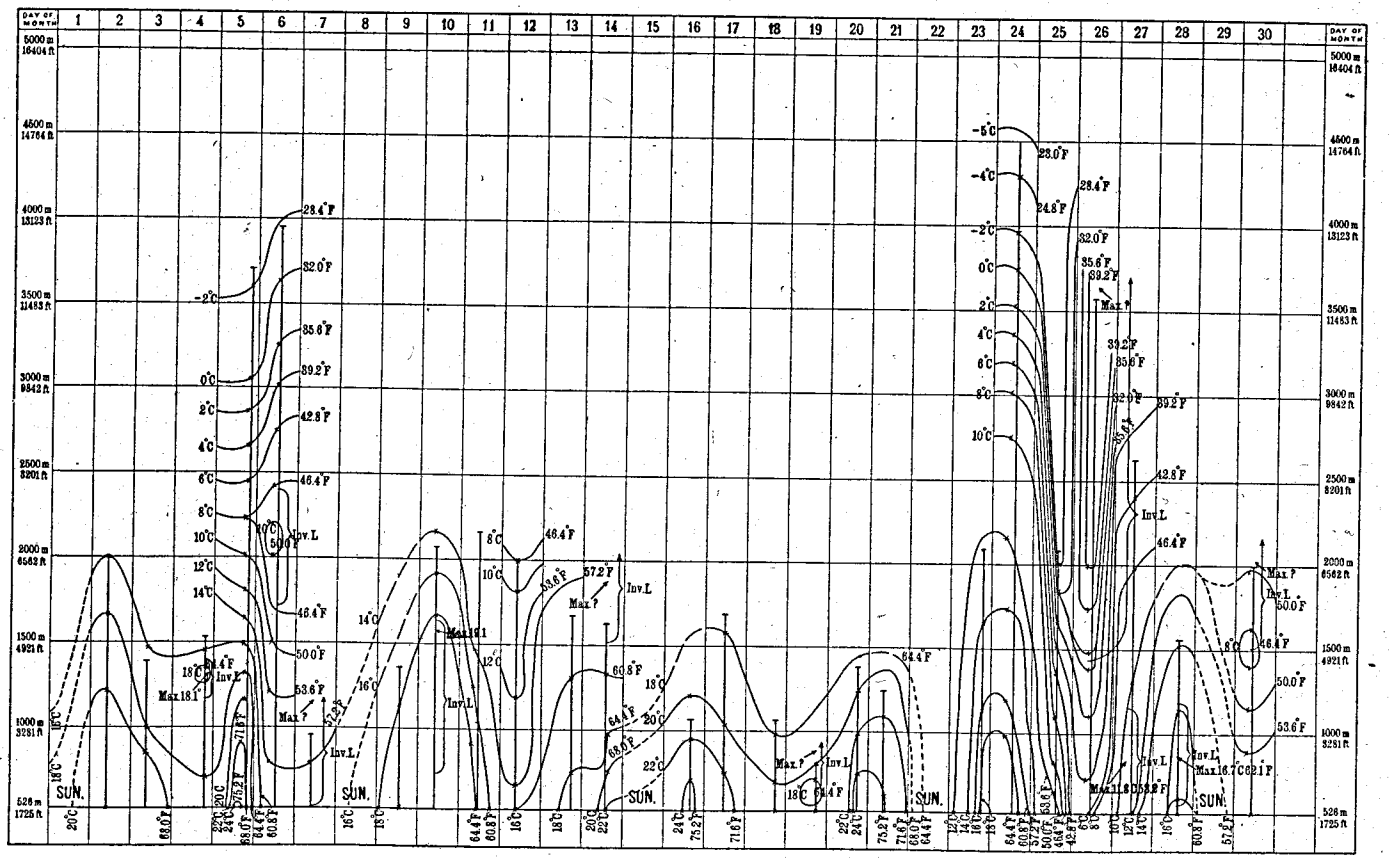
Plate VIII shows the kite field. It is not located on a hilltop but in a saddle, points on either side at distances of half a mile from it along the range being slightly higher. Thru this slight depression in the range there is almost always a sufficient air movement to take the kites into the upper air currents. Nine miles per hour (4.0 meters per second) has been found a sufficient surface current in which to get the kites started, although flights have been obtained in even less wind than this. In a number of directions from the reel house there are sufficient clearings to enable us to take the kites out a distance of



Upper air isotherms, July, 1907.



Upper air isotherms, August, 1907.



Upper air isotherms, September, 1907.

1,000 feet (305 meters) or more when insufficient wind at the surface demands this procedure.

Twice in the last three months the winds have been too light to start kites at any time during the day. On such occasions the kite meteorograph is sent up by means of captive balloons. The balloons used for this purpose are the Assmann rubber balloons generally used in free balloon work. They are about 6 feet (150 to 200 centimeters) in diameter. Two or three of these in tandem are sufficient to carry the meteorograph and 6,000 or 7,000 feet (2,000 meters) of piano wire of diameter .02 inch (.5 millimeter).

Plate IX is an interior view of the power-house, showing the 35-horsepower (26 kilowatts) engine, the 23.5-horsepower (17.5 kilowatts) generator, the electrolyser for the production of the hydrogen used in balloon work, and the Norwalk compressor used in compressing gas for shipment and in making liquid air.

Plate III is an interior view showing in part the office and instrumental equipment of the aerial department. The testing chamber and air pump are central in the illustration.

In the data which follow such of the observations taken at the reel house and aloft as show peculiarities or changes in the temperature gradients or air currents, altitudes of clouds, depths of cloud and fog layers, and the highest points reached have been selected and worked up.

In order to present a general graphical view of the upper air temperatures for the three months, July, August, and September, isothermal charts (I, II, and III, respectively) have been constructed as follows:

From the data as they appear in the tables the temperature gradient as observed by each flight is plotted and from these plots are taken the altitudes for each degree of temperature. These data together with the time of flight are used in the construction of the charts, a given temperature being located at the intersection of the ordinate and abscissa indicating the altitude and time, respectively, at which it was observed.

A sample of the temperature gradient plots is shown in fig. 3. This is the plot for September 5. Altitudes are shown by the ordinates and temperatures by the abscissas. Points transferred from the gradient plots to the isothermal charts are marked (X) and connected by means of solid lines.

Dashed lines are used to show the supposed positions of the isotherms on days in which these particular temperatures were not reached. Other interpolations might be made in the upper isotherms

with a high degree of probability. The charts are thus made to show the temperature gradient as actually observed and, in a general way, its continuous changes with altitude and time as well as the upper air temperatures themselves.

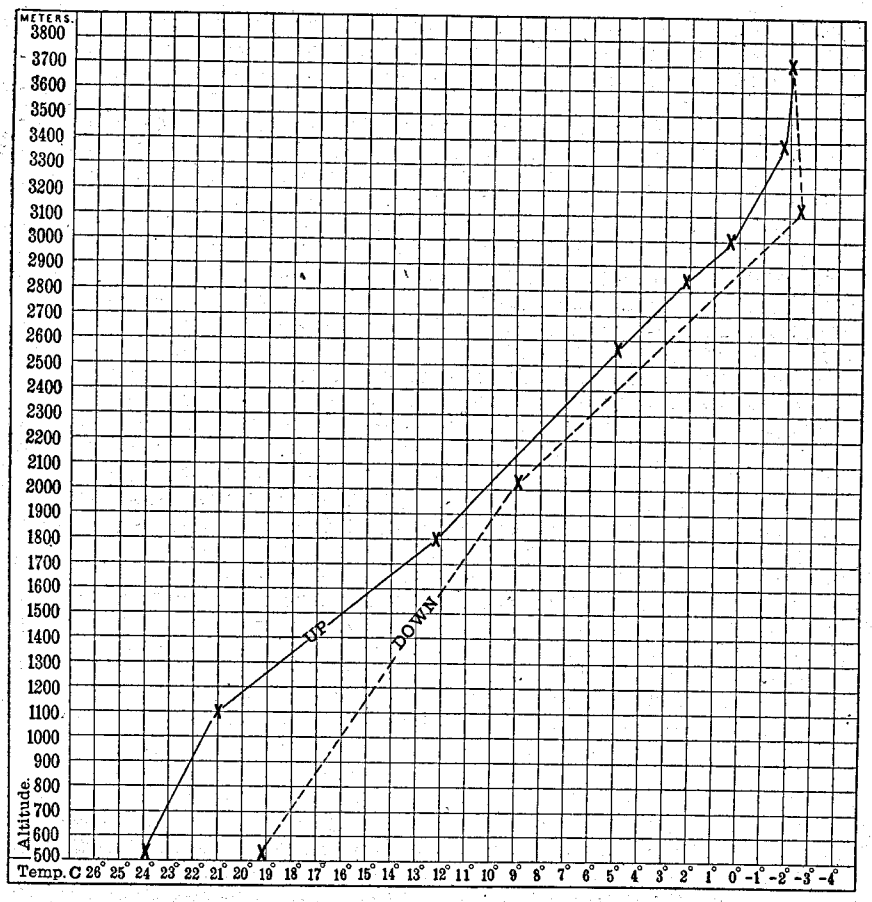


FIG. 3.—Temperature gradient plot, September 5, 1907.

An inversion layer is marked by a brace at the ends of which the temperature is the same but lower than that at any included altitude. This temperature is the lowest reached below the inversion, and its two altitudes form the upper and lower boundaries of the layer. The position of the maximum temperature obtained in the inversion is located on the chart by means of an arrow and the actual temperature at this altitude given.

Actual altitudes obtained are shown by the vertical lines drawn on the chart at the time the highest point of the flight was reached. The mean of the highest altitudes reached daily in these three months is 6,535 feet (1,992 meters) and the highest altitude reached was 14,774 feet (4,503 meters).

The data for the flights made during the month of June are given, but no isothermal chart was made for this month owing to the fact that daily upper air readings were not begun until late in the month.

Further discussion of the following data from other points of view will appear in later numbers of the bulletin.

The numerical results of kite flights follow:

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
June 5, 1907.	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
7:57 a. m...	61.0	16.0	74	sw.	12	5.4	1,725	526	61.0	16.0	74	sw.	12	5.4
8:05 a. m...	61.0	16.0	81	s.	14	6.3	2,591	790	59.0	15.0	65	sw.	.....	.....
8:15 a. m...	61.0	16.0	81	s.	14	6.3	2,638	804	61.0	16.0	65	sw.	.....	.....
8:20 a. m...	61.5	16.5	75	s.	14	6.3	3,522	1,074	59.0	15.0	45	sw.	.....	.....
8:37 a. m...	60.5	16.0	75	s.	14	6.3	4,323	1,320	55.0	13.0	45	sw.	.....	.....
8:48 a. m...	61.0	16.0	70	s.	14	6.3	5,114	1,558	51.5	11.0	65	sw.	.....	.....
8:55 a. m...	62.0	16.5	68	s.	14	6.3	4,925	1,501	52.0	11.0	70	w.	.....	.....
9:02 a. m...	62.0	16.5	69	sw.	12	5.4	5,725	1,745	48.0	9.0	75	w.	.....	.....
9:12 a. m...	61.0	16.0	70	sw.	12	5.4	6,936	2,114	43.0	6.0	85	w.	.....	.....
9:22 a. m...	61.0	16.0	76	sw.	12	5.4	7,925	2,416	39.0	4.0	95	w.	.....	.....
9:29 a. m...	61.0	16.0	75	sw.	12	5.4	8,322	2,536	38.5	3.5	100	w.	.....	.....
10:00 a. m...	60.5	16.0	78	sw.	10	4.5	5,137	1,566	50.0	10.0	94	sw.	.....	.....
10:17 a. m...	60.5	16.0	81	sw.	7	3.1	1,725	526	60.5	16.0	81	sw.	7	3.1
June 6, 1907.														
1:36 p. m....	64.5	18.1	44	nw.	28	12.5	1,725	526	64.5	18.1	44	nw.	28	12.5
1:39 p. m....	64.0	17.8	45	nw.	28	12.5	2,010	612	56.5	13.6	45	nw.	.....	.....
1:47 p. m....	63.8	17.7	48	nw.	28	12.5	4,042	1,232	51.5	10.8	50	nw.	.....	.....
1:57 p. m....	63.6	17.6	49	nw.	28	12.5	4,975	1,516	47.0	8.6	50	nnw	.....	.....
1:59 p. m....	63.4	17.4	50	nw.	28	12.5	5,243	1,598	45.5	7.5	58	nnw	.....	.....
2:05 p. m....	63.0	17.2	49	nw.	24	10.7	6,090	1,856	41.5	5.3	64	nnw	.....	.....
2:08 p. m....	62.8	17.1	48	nw.	24	10.7	6,859	2,090	37.5	3.1	75	w.	.....	.....
2:11 p. m....	62.6	17.0	47	nw.	24	10.7	7,106	2,166	37.2	2.9	75	w.	.....	.....
3:10 p. m....	65.0	18.3	44	nw.	25	11.2	8,172	2,491	34.5	1.4	85	w.	.....	.....
3:35 p. m....	65.0	18.3	40	nw.	25	11.2	8,825	2,690	32.0	0.0	88	w.	.....	.....
4:16 p. m....	65.8	18.8	37	nw.	25	11.2	5,665	1,726	44.0	6.7	73	wnw	.....	.....
4:24 p. m....	65.5	18.6	38	nw.	25	11.2	5,237	1,596	46.0	7.8	70	wnw	.....	.....
4:34 p. m....	65.8	18.8	39	nw.	25	11.2	4,175	1,272	53.0	11.7	60	nw.	.....	.....
5:07 p. m....	65.0	18.3	38	nw.	25	11.2	1,725	526	65.0	18.3	38	nw.	25	11.2

June 5, 1907.—The flight was made with one kite having a lifting surface of 68 square feet (6.3 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 10,000 feet (3,048 meters).

From 7/10 to 9/10 stratus and strato-cumulus clouds prevailed during the flight. At an altitude of 7,925 feet (2,416 meters) above sea level, the kite was in the clouds.

At the time of the flight the station was about 800 miles due south of a center of decidedly low pressure over the Province of Ontario. A ridge of high pressure was central over the Missouri River Valley, and moderately high pressure prevailed over Florida. Heavy precipitation had previously occurred in Wisconsin.

June 6, 1907.—The flight was made with two kites having a total lifting surface of 112 square feet (10.5 square meters).

At the maximum altitude, the maximum amount of wire, 13,200 feet (4,023 meters) was out.

At the beginning of the flight 3/10 strato-cumulus clouds from the northwest were observed. At an altitude of 7,106 feet (2,166 meters) above sea level the kite was in the base of cumulus clouds. Toward the close of the flight the clouds were dissipating.

At the time of the flight an extensive area of low pressure was central over the upper St. Lawrence Valley, and the station was about midway between this disturbance and an area of high pressure central over Tennessee. Heavy precipitation had previously occurred over the lower Great Lakes.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
June 10, 1907.	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
7:31 a. m....	55.0	12.8	70	e.	10	4.5	1,725	526	55.0	12.8	70	e.	10	4.5
7:40 a. m....	55.0	12.8	71	e.	10	4.5	2,619	798	53.0	11.7	70	ene.	.....	.....
7:48 a. m....	55.0	12.8	71	e.	10	4.5	3,163	964	53.0	11.7	65	e.	.....	.....
7:58 a. m....	55.0	12.8	70	e.	10	4.5	3,381	1,031	51.7	10.9	65	e.	.....	.....
8:02 a. m....	55.0	12.8	70	e.	10	4.5	3,646	1,111	51.2	10.7	65	e.	.....	.....
8:40 a. m....	56.0	13.3	69	e.	9	4.0	4,146	1,264	49.3	9.6	67	e.	.....	.....
9:26 a. m....	57.0	13.9	71	e.	10	4.5	4,339	1,322	49.2	9.6	67	e.	.....	.....
9:30 a. m....	58.0	14.4	72	e.	10	4.5	4,165	1,270	49.2	9.6	67	e.	.....	.....
9:44 a. m....	59.0	15.0	75	e.	10	4.5	1,725	526	59.0	15.0	75	e.	10	4.5
June 15, 1907.														
7:39 a. m...	58.0	14.5	72	nw.	28	12.5	1,725	526	58.0	14.5	72	nw.	28	12.5
7:47 a. m...	57.5	14.2	75	nw.	28	12.5	3,302	1,006	58.0	14.5	60	nw.	.....	.....
7:58 a. m...	58.2	14.5	72	nw.	27	12.1	4,506	1,374	60.0	15.6	45	nnw	.....	.....
8:01 a. m...	59.0	15.0	72	nw.	26	11.6	4,515	1,376	60.0	15.6	45	nnw	.....	.....
8:02 a. m...	60.2	15.7	71	nw.	26	11.6	4,578	1,395	59.5	15.3	45	nnw	.....	.....
8:11 a. m...	61.3	16.3	71	nw.	26	11.6	5,135	1,565	57.5	14.2	45	nnw	.....	.....
8:46 a. m...	62.3	16.8	70	nw.	25	11.2	6,867	2,093	49.5	9.7	50	nnw	.....	.....
9:00 a. m...	63.5	17.5	70	nw.	25	11.2	7,005	2,135	49.0	9.5	50	nnw	.....	.....
9:32 a. m...	64.8	18.2	69	nw.	24	10.7	8,038	2,450	44.0	6.7	60	w.	.....	.....
10:00 a. m...	66.8	19.3	65	nw.	24	10.7	5,847	1,782	55.5	13.1	45	nnw	.....	.....
10:21 a. m...	67.0	19.4	64	nw.	23	10.3	4,133	1,260	62.0	16.7	35	nnw	.....	.....
10:26 a. m...	67.3	19.6	62	nw.	23	10.3	4,115	1,254	62.0	16.7	35	nnw	.....	.....
10:30 a. m...	67.5	19.7	60	nw.	22	9.8	3,525	1,074	64.0	17.8	30	nw.	.....	.....
10:33 a. m...	67.7	19.8	59	nw.	22	9.8	2,925	892	61.0	16.1	35	nw.	.....	.....
10:41 a. m...	68.0	20.0	57	nw.	21	9.4	1,725	526	68.0	20.0	57	nw.	21	9.4

June 10, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 5,000 feet (1,524 meters); wire out at maximum altitude was 5,000 feet (1,524 meters).

About 8/10 clouds, of a cumulus nature, observed at beginning of flight, gradually diminished toward the close.

At the time of the flight a barometric depression of considerable intensity was central over Iowa and southern Minnesota, accompanied by thunderstorms and heavy precipitation. An area of high pressure was central over the St. Lawrence Valley.

June 15, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 10,000 feet (3,048 meters).

From 1/10 to 5/10 alto-cumulus and strato-cumulus clouds prevailed during the flight.

At the time of the flight an extensive area of high pressure, central over the middle Mississippi Valley, dominated the weather over the central part of the United States. An area of low pressure was central off the coast of Massachusetts.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
June 20, 1907.	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
7:50 a. m...	68.0	20.0	....	w.	13 / 5.8	1,725	526	68.0	20.0	.....	w.	13 / 5.8
8:50 a. m...	70.0	21.1	....	w.	12 / 5.4	2,486	758	70.0	21.1	.....	w.	..... / .....
9:24 a. m...	71.5	21.9	....	w.	10 / 4.5	1,725	526	71.5	21.9	.....	w.	10 / 4.5
June 22, 1907.												
1:45 p. m...	80.0	26.7	56	se.	12 / 5.4	1,725	526	80.0	26.7	56	se.	12 / 5.4
2:57 p. m...	79.0	26.1	....	se.	12 / 5.4	3,967	1,209	70.0	21.1	.....	se.	..... / .....
3:31 p. m...	80.0	26.7	56	se.	12 / 5.4	1,725	526	80.0	26.7	56	se.	12 / 5.4
June 24, 1906.												
2:34 p. m...	78.0	25.6	....	sse.	12 / 5.4	1,725	526	78.0	25.6	....	sse.	12 / 5.4
2:49 p. m...	78.5	25.8	....	sse.	12 / 5.4	3,134	955	73.1	22.8	.....	sse.	..... / .....
3:08 p. m...	79.0	26.1	....	se.	13 / 5.8	4,203	1,281	67.5	19.7	.....	sse.	..... / .....
3:46 p. m...	80.0	26.7	....	se.	14 / 6.3	1,725	526	80.0	26.7	.....	se.	14 / 6.3

June 20, 1907.—The flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 1,800 feet (549 meters); wire out at maximum altitude was 1,800 feet (549 meters).

The sky was totally obscured by alto-stratus and alto-cumulus clouds during the flight.

At the time of the flight the Middle and South Atlantic States were covered by moderately high pressure, with centers over northern Georgia and over the lower Lakes. A low pressure area was moving in over Montana from the northwest. Heavy precipitation had previously occurred in Vermont.

June 22, 1907.—The flight was made with two kites having a total lifting surface of 142 square feet (13.1 square meters).

The maximum amount of wire out was 3,500 feet (1,067 meters); wire out at maximum altitude was 3,500 feet (1,067 meters).

A generally hazy atmosphere prevailed at beginning of the flight, and from 1/10 to 3/10 clouds, of a cumulus nature, were visible thruout the flight.

At the time of the flight high pressure dominated the weather over the eastern half of the country, while a barometric depression of considerable intensity prevailed over the western half, being central over Utah. The station was between two centers of the eastern high.

June 24, 1907.—The flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 5,000 feet (1,524 meters); wire out at maximum altitude was 4,000 feet (1,219 meters).

From 1/10 to 3/10 alto-cumulus clouds and a few cumulus were visible during the flight.

At the time of the flight the entire southeastern part of the United States was covered by moderately high pressure. A trough of low pressure extended from Mexico to Minnesota, and an area of relatively low pressure was central over the lower St. Lawrence Valley. Heavy precipitation had previously occurred in Virginia.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
June 25, 1907.	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
7:20 a. m....	70.0	21.1	....	wnw.	14 / 6.3	1,725	526	70.0	21.1	....	wnw.	14 / 6.3
7:46 a. m....	71.0	21.7	....	wnw.	14 / 6.3	3,761	1,146	67.3	19.6	.....	w.	..... / .....
8:49 a. m....	73.5	23.1	....	nw.	13 / 5.8	1,725	526	73.5	23.1	.....	nw.	13 / 5.8
June 26, 1907.												
7:18 a. m....	70.0	21.1	....	w.	21 / 9.4	1,725	526	70.0	21.1	....	w.	21 / 9.4
7:30 a. m. ...	70.2	21.2	....	w.	21 / 9.4	2,533	773	68.4	20.2	.....	wnw	..... / .....
8:21 a. m....	72.8	22.7	....	w.	21 / 9.4	3,451	1,052	70.0	21.1	.....	w.	..... / .....
8:50 a. m....	73.0	22.8	....	w.	20 / 8.9	5,266	1,605	59.2	15.1	.....	w.	..... / .....
9:20 a. m....	73.5	23.1	....	w.	20 / 8.9	10,679	3,255	41.7	5.4	.....	wsw	..... / .....
9:28 a. m....	73.2	22.9	71	nw.	20 / 8.9	11,207	3,416	38.1	3.4	.....	wsw	..... / .....
9:58 a. m....	73.0	22.8	76	nw.	16 / 7.2	13,458	4,102	30.4	—0.9	.....	wsw	..... / .....
1:06 p. m....	72.0	22.2	82	w.	13 / 5.8	1,725	526	72.0	22.2	82	w.	13 / 5.8

June 25, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 3,800 feet (1,158 meters); wire out at maximum altitude was 3,500 feet (1,067 meters).

About 1/10 alto-culumus clouds from the southwest, observed at the beginning of the flight, gradually increased to 3/10 toward the close.

At the time of the flight the South Atlantic States were covered by an area of high pressure central over northern Georgia. A trough of moderately low pressure extended from Mexico northeastward to the St. Lawrence Valley, with a center over eastern Kansas and another north of the lower Lakes.

June 26, 1907.—The flight was made with four kites having a total lifting surface of 272 square feet (25.2 square meters).

The maximum amount of wire out was 19,000 feet (5,791 meters); wire out at maximum altitude was 19,000 feet (5,791 meters).

At beginning of the flight about 3/10 strato-cumulus and 4/10 alto-stratus clouds, from the west, were observed. At 8:50 a. m. the clouds were increasing and when the uppermost kite had reached an altitude of 10,679 feet (3,255 meters), it was in the base of them. At 10:24 a. m. a light shower began and heavy rain was approaching in the valley to the west; this reached the station, accompanied by strong wind, about 11:55 a. m.

At the time of the flight the station was to the south of an area of low pressure, accompanied by showers and thunderstorms, central over the upper St. Lawrence Valley. An extensive high, central over Wyoming and South Dakota, dominated weather conditions over the western half of the country. Heavy precipitation had previously occurred in Florida and Arkansas.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.						At different heights above sea.							
	Air temperature.		Rel. hum.	Wind.			Height.		Air temperature.		Rel. hum.	Wind.		
				Dir.	Velocity.							Dir.	Velocity.	
June 27, 1907.	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
7:26 a. m...	61.8	16.6	....	nw.	19	8.5	1,725	526	61.8	16.6	.....	nw.	19	8.5
7:38 a. m...	62.5	16.9	....	nw.	19	8.5	3,652	1,113	53.7	12.1	.....	wnw.	.....	.....
7:56 a. m...	62.5	16.9	....	nw.	19	8.5	5,361	1,634	49.2	9.6	.....	wnw.	.....	.....
8:31 a. m...	63.8	17.7	....	nw.	21	9.4	8,125	2,477	52.8	11.6	.....	wnw.	.....	.....
8:56 a. m...	64.0	17.8	....	nw.	21	9.4	8,982	2,738	47.4	8.6	.....	wnw.	.....	.....
June 28, 1907.														
10:23 a. m...	70.0	21.1	....	e.	10	4.5	1,725	526	70.0	21.1	.....	e.	10	4.5
10:39 a. m...	71.0	21.7	....	se.	10	4.5	3,346	1,020	68.0	20.0	.....	sse.	.....	.....
10:54 a. m...	71.0	21.7	....	se.	10	4.5	3,402	1,037	65.5	18.6	.....	sse.	.....	.....
11:12 a. m...	72.0	22.2	....	se.	11	4.9	4,029	1,228	63.7	17.6	.....	sse.	.....	.....
11:31 a. m...	72.0	22.2	....	se.	11	4.9	1,725	526	72.0	22.2	.....	se.	11	4.9
June 29, 1907.														
8:07 a. m...	56.0	13.3	....	e.	15	6.7	1,725	526	56.0	13.3	.....	e.	15	6.7
8:34 a. m...	56.0	13.3	....	e.	15	6.7	3,908	1,191	59.7	15.4	.....	ese.	.....	.....
8:44 a. m...	56.0	13.3	....	e.	15	6.7	2,600	792	56.0	13.3	.....	ese.	.....	.....
8:54 a. m...	55.5	13.1	....	e.	16	7.2	1,725	526	55.5	13.1	.....	e.	16	7.2

June 27, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 15,000 feet (4,572 meters); wire out at maximum altitude was 15,000 feet (4,572 meters).

About 8/10 clouds were observed at beginning; these gradually diminished to 5/10 near close of the flight.

At the time of the flight the weather over the entire central portion of the United States was dominated by a high, central over Nebraska. An extensive area of low pressure was central over eastern Maine and a secondary low, central over South Carolina. Heavy precipitation had accompanied both depressions.

June 28, 1907.—The flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum of wire out was 4,500 feet (1,372 meters); wire out at maximum altitude was 4,000 feet (1,219 meters).

About 8/10 stratus clouds at beginning of flight gradually diminished to 5/10 toward the close.

At the time of the flight a depression of considerable intensity was moving off over the lower St. Lawrence Valley, and a secondary low was central over Mississippi, while moderately high pressure centered over the lower Great Lakes. Heavy precipitation had previously occurred in Georgia.

June 29, 1907.—The flight was made with one kite having a lifting surface of 68 square feet (6.3 square meters).

The maximum of wire out was 4,085 feet (1,245 meters); wire out at maximum altitude was 3,100 feet (945 meters).

A dense fog prevailed during the flight.

At the time of the flight the station was near the center of an area of low pressure covering the Atlantic coast. An area of moderately high pressure was central over Nova Scotia and another over Arkansas.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.					
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
July 1, 1907.	° F.	° C.	%		Miles p. h.	Mel's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Mel's p. s.
10:32 a. m...	74.0	23.3	..	sse	11.	4.9	1,725	526	74.0	23.3	.....	sse	11	4.9
10:58 a. m...	74.4	23.6	....	s.	12	5.4	2,899	883	70.0	21.1	.....	s.	.....	.....
11:19 a. m...	75.0	23.9	...	s.	12	5.4	1,725	526	75.0	23.9	.....	s.	12	5.4
2d flight.														
1:24 p. m...	77.5	25.3	61	s.	15	6.7	1,725	526	77.5	25.3	61	s.	15	6.7
3:14 p. m...	78.0	25.6	62	s.	16	7.2	5,025	1,532	64.9	18.3	.....	ssw	.....	.....
3:42 p. m...	78.0	25.6	64	s.	16	7.2	1,725	526	78.0	25.6	64	s.	16	7.2
July 2, 1907.														
7:13 a. m....	66.4	19.1	87	nw.	26	11.6	1,725	526	66.4	19.1	87	nw.	26	11.6
7:20 a. m....	86.4	19.1	87	nw.	26	11.6	3,689	1,124	65.0	18.3	.....	nw.	.....	.....
7:36 a. m....	66.6	19.2	86	nw.	26	11.6	6,067	1,849	58.0	14.4	.....	nw.	.....	.....
8 00 a. m....	68.0	20.0	85	nw.	26	11.6	6,478	1,974	56.5	13.6	.....	nw.	.....	.....
8:07 a. m....	68.5	20.3	85	nw.	25	11.2	5,881	1,792	57.5	14.2	.....	nw.	.....	.....
3:17 a. m....	69.0	20.6	86	nw.	25	11.2	5,065	1,544	60.2	15.6	.....	nw.	.....	.....
8:29 a. m....	70.0	21.1	81	nw.	25	11.2	4,014	1,224	61.5	16.4	.....	nw.	.....	.....
8:41 a. m....	70.0	21.1	81	nw.	23	10.3	3,045	928	62.5	16.9	.....	nw.	.....	.....
8:56 a. m....	70.5	21.4	79	nw.	20	8.9	1,725	526	70.5	21.4	79	nw.	20	8.9

July 1, 1907.—The first flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 1,770 feet (540 meters); wire out at maximum altitude was 1,400 feet (427 meters).

The second flight was made with three kites having a total lifting surface of 204 square feet (18.9 square meters).

The maximum amount of wire out was 7,890 feet (2,405 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

A few cumulus clouds, drifting from the south, were observed at the beginning of the flight. At 2:55 p. m. the cumulus clouds had disappeared and a few cirrus were observed in the northwest.

At the time of the flights the station was on the southeastern border of a trough of low pressure extending from Texas northeastward into Canada. An area of high pressure was central over Yellowstone Park, Wyo., and another over the Florida Peninsula.

July 2, 1907.—The flight was made with one kite having a lifting surface of 68 square feet (6.3 square meters).

The maximum amount of wire out was 9,100 feet (2,774 meters); wire out at maximum altitude was 8,000 feet (2,438 meters).

A few small cumulus and alto-stratus clouds were observed at the beginning of the flight. Detached cumulus clouds past under kite at an altitude of 6,400 feet (1,951 meters). Cumulus and alto-stratus were increasing during the flight.

At the time of the flight the station was in the southern portion of an area of low pressure central over the St. Lawrence Valley. The pressure was high over the upper Lake region.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.						At different heights above sea.							
	Air temperature.		Rel. hum.	Wind.			Height.		Air temperature.		Rel. hum.	Wind.		
				Dir.	Velocity.							Dir.	Velocity.	
July 3, 1907.	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
7:17 a. m...	56.8	13.8	83	nw.	19	8.5	1,725	526	56.8	13.8	83	nw.	19	8.5
7:22 a. m...	57.3	14.1	81	nw.	19	8.5	3,332	1,016	47.2	8.5	90	n.	.....	.....
7:38 a. m...	57.3	14.3	80	nw.	19	8.5	3,843	1,172	53.0	14.5	60	n.	.....	.....
7:54 a. m...	58.0	14.5	80	nw.	19	8.5	5,989	1,826	55.5	13.1	40	nnw	.....	.....
8:45 a. m...	60.0	15.6	77	nw.	18	8.0	6,432	1,961	53.5	12.0	45	nnw	.....	.....
10:06 a. m...	62.0	16.7	73	nw.	21	9.4	5,985	1,825	55.5	13.1	40	n.	.....	.....
10:30 a. m...	62.5	16.9	70	nw.	23	10.3	3,975	1,212	60.8	16.0	40	n.	.....	.....
10:36 a. m...	63.5	17.5	70	nw.	23	10.3	3,821	1,165	56.0	13.3	45	n.	.....	.....
10:43 a. m...	63.5	17.5	70	nw.	23	10.3	2,555	779	55.0	12.8	65	nw.	.....	.....
10:50 a. m...	63.5	17.5	70	nw.	23	10.3	1,725	526	63.5	17.5	70	nw.	23	10.3
July 4, 1907.														
5:19 p. m....	69.0	20.6	64	se.	9	4.0	1,725	526	69.0	20.6	64	se.	9	4.0
5:49 p. m....	68.0	20.0	67	se.	10	4.5	3,621	1,104	61.2	16.2	68	se.	.....	.....
6:25 p. m....	68.0	20.0	65	se.	8	3.6	1,725	526	68.0	20.0	65	se.	8	3.6
July 5, 1907.														
4:26 p. m....	69.4	20.8	70	w.	10	4.5	1,725	526	69.4	20.8	70	w.	10	4.5
5:08 p. m....	71.0	21.7	64	w.	9	4.0	2,763	842	65.0	18.3	60	.....	.....	.....
5:28 p. m....	72.5	22.5	63	w.	9	4.0	1,725	526	72.5	22.5	63	w.	9	4.0

July 3, 1907.—The flight was made with three kites having a total lifting surface of 204 square feet (18.9 square meters).

The altitude of the flight was limited by the decreased velocity of the upper wind.

The maximum amount of wire out was 10,500 feet (3,200 meters); wire out at maximum altitude was 10,000 feet (3,048 meters).

At the beginning of the flight there were only a few low clouds traveling from the north-northwest. At the close of the flight the clouds had increased to 4/10 strato-cumulus.

At the time of the flight the station was in the eastern part of an area of high pressure central over Indiana. The nearest area of low pressure was central over Georgia while another prevailed over Maine.

July 4, 1907.—The flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 3,700 feet (1,128 meters); wire out at maximum altitude was 3,500 feet (1,067 meters).

The sky was totally obscured by strato-cumulus clouds during flight.

At the time of the flight the station was near the center of an extensive area of high pressure covering the Ohio Valley. A barometric depression of considerable intensity was moving in over Montana and the Dakotas from the northwest.

July 5, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 3,000 feet (914 meters); wire out at maximum altitude was 2,500 feet (762 meters).

During the flight the sky was totally obscured by cumulus and strato-cumulus clouds.

At the time of the flight the station was the center of an extensive area of high pressure covering the entire portion of the United States east of the Mississippi River, except the upper Lake region. A barometric depression of considerable intensity, accompanied by thunderstorms, was central over southern Minnesota.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
July 6, 1907.	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
5:27 p. m.	78.0	25.6	64	s.	11 / 4.9	1,725	526	78.0	25.6	64	s.	11 / 4.9
6:05 p. m.	77.0	25.0	65	s.	12 / 5.4	4,173	1,272	68.8	20.4	.....	sse.	..... / .....
6:25 p. m.	76.8	24.9	65	s.	12 / 5.4	1,725	526	76.8	24.9	65	s.	12 / 5.4
July 8, 1907.												
2:04 p. m.	84.0	28.9	....	w.	12 / 5.4	1,725	526	84.0	28.9	.....	w.	12 / 5.4
2:50 p. m.	84.4	29.1	....	w.	12 / 5.4	6,127	1,868	61.9	16.6	.....	w.	..... / .....
3:20 p. m.	85.5	29.7	....	nw.	13 / 5.8	8,692	2,650	52.2	11.2	.....	w.	..... / .....
3:40 p. m.	85.5	29.7	....	nw.	14 / 6.3	6,842	2,086	59.2	15.1	.....	w.	..... / .....
4:02 p. m.	85.3	29.6	....	nw.	15 / 6.7	4,800	1,463	69.1	20.6	.....	w.	..... / .....
4:27 p. m.	84.9	29.4	....	nw.	15 / 6.7	1,725	526	84.9	29.4	.....	nw.	15 / 6.7
July 9, 1907.												
9:27 a. m.	71.5	21.9	....	nw.	24 / 10.7	1,725	526	71.5	21.9	.....	nw.	24 / 10.7
8:40 a. m.	72.4	22.4	....	w.	20 / 8.9	4,028	1,228	67.1	19.5	.....	wnw	..... / .....
10:10 a. m.	72.7	22.6	....	nw.	28 / 12.5	5,562	1,695	63.0	17.2	.....	wnw	..... / .....
10:37 a. m.	73.8	23.2	....	nw.	30 / 13.4	6,580	2,006	60.3	15.7	.....	wnw	..... / .....
11:47 a. m.	71.6	22.0	....	w.	35 / 15.6	1,725	526	71.6	22.0	.....	w.	35 / 15.6

July 6, 1907.—The flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 4,680 feet (1,426 meters); wire out at maximum altitude was 4,000 feet (1,219 meters).

At the beginning of the flight about 1/10 stratus and strato-cumulus clouds were observed, gradually diminishing toward the end of flight.

At the time of the flight the station was in the southern border of an area of low pressure central over Lake Erie, while to the south an extensive area of moderately high pressure prevailed over the Gulf States.

July 8, 1907.—The flight was made with two kites having a total lifting surface of 224 square feet (21 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 10,000 feet (3,048 meters).

From two to three-tenths cumulus clouds prevailed during the flight.

At the time of the flight the station was midway between an extensive area of low pressure central over White River, Canada, and an extensive high central over northwestern Georgia. Thunderstorms prevailed over the upper Lake region and northern New England, accompanied by excessive precipitation in the latter region.

July 9, 1907.—The flight was made with one kite having a lifting surface of 68 square feet (6.3 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 10,000 feet (3,048 meters).

Clouds at beginning of flight, 2/10 strato-cumulus from the northwest, gradually increasing to total cloudiness. Elevation of clouds: 3,500 to 4,000 feet (1,067 to 1,219 meters).

At the time of the flight the station bordered on the edge of an extensive barometric depression central over Quebec. A moderate high of considerable extent prevailed over the South Atlantic and Gulf States.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
July 10, 1907.	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
9:55 a.m...	75.8	24.3	....	w.	13 / 5.8	1,725	526	75.8	24.3	.....	wnw	13 / 5.8
10:33 a.m...	75.7	24.3	....	w.	10 / 4.5	4,096	1,248	66.8	19.3	.....	w.	..... / .....
12:00 m.	77.0	25.0	....	w.	11 / 4.9	1,725	526	77.8	25.0	.....	w.	11 / 4.9
July 11, 1907.												
7:22 a.m...	68.8	20.4	89	w.	15 / 6.7	1,725	526	68.8	20.4	89	w.	15 / 6.7
7:55 a.m...	69.2	20.7	82	w.	11 / 4.9	5,050	1,539	64.6	18.1	.....	w.	..... / .....
8:05 a.m...	69.5	20.8	83	w.	10 / 4.5	5,814	1,772	63.0	17.2	.....	w.	..... / .....
8:30 a.m...	70.7	21.5	77	w.	10 / 4.5	7,022	2,140	60.5	15.8	.....	sw.	..... / .....
9:10 a.m...	75.5	24.2	66	sw.	8 / 3.6	8,923	2,720	50.5	10.3	.....	sw.	..... / .....
10:20 a.m...	78.0	25.6	67	s.	8 / 3.6	11,934	3,638	37.9	3.3	.....	w.	..... / .....
12:05 p.m...	79.0	26.1	68	s.	10 / 4.5	10,249	3,124	46.0	7.8	.....	w.	..... / .....
12:31 p.m...	79.5	26.4	68	s.	10 / 4.5	7,480	2,280	55.3	12.9	.....	sw.	..... / .....
1:00 p.m...	79.8	26.6	70	s.	9 / 4.0	1,725	526	79.8	26.6	70	s.	9 / 4.0

July 10, 1907.—The flight was made with two kites having a total lifting surface of 142 square feet (13.1 square meters).

The maximum amount of wire out was 4,000 feet (1,219 meters); wire out at maximum altitude was 4,000 feet (1,219 meters).

Clouds at beginning of flight, 4/10 alto-cumulus, from the west-northwest. Toward the end of the flight cumulo-nimbus clouds appeared over the Shenandoah Valley, thunder was heard, and rain soon began.

At the time of the flight a trough of low pressure extended from New Mexico to the Gulf of St. Lawrence, while the Gulf States were covered by a moderate high.

July 11, 1907.—The flight was made with two kites having a total lifting surface of 142 square feet (13.1 square meters).

The maximum amount of wire out was 18,750 feet (5,715 meters); wire out at maximum altitude was 18,750 feet (5,715 meters).

At the beginning of the flight 9/10 strato-cumulus clouds were observed but later diminished to 2/10 cumulus and 4/10 alto-cumulus toward end of flight. Kite entered cloud base at an elevation of 10,000 feet (3,048 meters).

At the time of the flight the station was in the front portion of a trough of low pressure extending from Texas northeastward into the St. Lawrence Valley, with well-defined areas of high pressure on either side. Thunderstorms were general thruout the entire portion of the United States east of the Rocky Mountains.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
July 12, 1907.														
8:00 a. m...	70.2	21.2	86	w.	16	7.2	1,725	526	70.2	21.2	86	w.	16	7.2
8:16 a. m...	70.2	21.2	86	w.	18	8.0	4,175	1,273	61.3	16.3	.....	w.	.....	.....
8:34 a. m..	70.5	21.4	86	w.	20	8.9	5,635	1,718	58.0	14.4	.....	w.	.....	.....
8:55 a. m...	70.0	21.1	86	w.	14	6.3	6,335	1,931	56.0	13.3	.....	w.	.....	.....
9:16 a. m...	70.4	21.3	83	w.	13	5.8	4,945	1,507	58.3	14.6	.....	w.	.....	.....
9:36 a. m...	72.0	22.2	82	w.	13	5.8	1,725	526	72.0	22.2	82	w.	13	5.8
July 13, 1907.														
6:50 p. m..	69.0	20.1	....	se.	9	4.0	1,725	526	69.0	20.1	.....	se.	9	4.0
7:38 p. m...	66.0	18.9	....	se.	8	3.6	3,110	948	61.5	16.4	.....	se.	.....	.....
8:05 p. m...	68.0	20.0	....	se.	8	3.6	1,725	526	68.0	20.0	.....	se.	8	3.6
July 15, 1907.														
7:41 a. m...	63.0	17.2	98	se.	10	4.5	1,725	526	63.0	17.2	98	se.	10	4.5
9:53 a. m..	70.0	21.1	79	se.	12	5.4	3,031	924	65.6	18.7	.....	se.	.....	.....
10:07 a. m...	71.0	21.7	79	se.	13	5.8	1,725	526	71.0	21.7	79	se.	13	5.8

July 12, 1907.—The flight was made with one kite having a lifting surface of 68 square feet (6.3 square meters).

The maximum amount of wire out was 7,000 feet (2,134 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

At the beginning of the flight the sky was entirely overcast with stratus clouds moving from the west. Showers began at 8:55 a. m., and continued intermittently thruout the flight.

At the time of the flight the station was in the southern portion of a well-developed area of low pressure central over northern New York, accompanied by considerable cloudiness and rain. Heavy precipitation had occurred during the previous twenty-four hours in the Ohio and lower Mississippi valleys and the lower Lake region. An area of moderately high pressure was central over eastern Kansas and another over the Florida Peninsula.

July 13, 1907.—The flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 3,000 feet (914 meters); wire out at maximum altitude was 2,250 feet (686 meters).

During the flight about 6/10 alto-stratus and alto-cumulus clouds were observed moving from the west.

At the time of the flight an area of low pressure was central over New Brunswick, while an extensive area of moderately high pressure, central over Ohio and Florida, dominated the weather south of the Great Lakes and east of the Mississippi River.

July 15, 1907.—The flight was made with two kites having a total lifting surface of 142 square feet (13.1 square meters).

The maximum amount of wire out was 4,000 feet (1,219 meters); wire out at maximum altitude was 2,500 feet (762 meters).

Dense fog in the early morning. Light fog at the beginning of the flight, gradually dissipating. At 8:45 a. m. the fog had lifted and 10/10 stratus clouds were observed moving from the southeast. The clouds diminished toward the end of the flight to about 4/10 strato-cumulus, from the southeast.

At the time of the flight the station bordered on the edge of a high pressure area central over eastern Maine, while a well-developed low, accompanied by thunderstorms, was central over Manitoba.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
July 16, 1907.	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
3:34 p. m...	82.0	27.8	....	s.	13	5.8	1,725	526	82.0	27.8	.....	s.	13	5.8
4:02 p. m..	82.0	27.8	....	se.	13	5.8	3,461	1,055	72.9	22.7	.....	s.	.....	.....
4:16 p. m...	82.5	28.1	....	s.	14	6.3	3,457	1,054	72.9	22.7	.....	s.	.....	.....
4:30 p. m..	82.0	27.8	....	s.	14	6.3	3,815	1,163	70.6	21.4	.....	s.	.....	.....
4:48 p. m...	81.5	27.5	....	s.	14	6.3	1,725	526	81.5	27.5	.....	s.	14	6.3
July 17, 1907.														
10:31 a. m...	69.5	20.8	....	w.	16	7.2	1,725	526	69.5	20.8	.....	w.	16	7.2
10:43 a. m...	69.8	21.0	....	w.	16	7.2	4,882	1,488	60.0	15.6	.....	w.	.....	.....
11:01 a. m...	70.0	21.1	....	w.	18	8.0	5,829	1,777	57.3	14.1	.....	w.	.....	.....
11:03 a. m...	70.0	21.1	....	w.	18	8.0	5,925	1,806	58.2	14.6	.....	w.	.....	.....
11:09 a. m...	70.6	21.4	....	sw.	18	8.0	5,970	1,820	59.1	15.1	.....	w.	.....	.....
11:45 a. m...	71.0	21.7	....	sw.	20	8.9	5,925	1,806	60.9	16.1	.....	w.	.....	.....
12:12 p. m.	71.0	21.7	....	w.	23	10.3	1,725	526	71.0	21.7	.....	w.	23	10.3

July 16, 1907.—The flight was made with one kite having a lifting surface of 121 square feet (11.2 square meters).

The maximum amount of wire out was 3,900 feet (1,189 meters); wire out at maximum altitude was 3,000 feet (914 meters).

At the beginning of the flight the sky was partially obscured by 3/10 cumulus from the south and 1/10 alto-cumulus from the northwest. One-half hour later 1/10 cumulus from the south and 4/10 alto-cumulus from the northwest were observed, but the tendency was toward clearing at the end of the flight.

This flight occurred in the middle of the afternoon. A trough of low pressure extended from western Texas up the Mississippi Valley into Canada, with a secondary depression to the north of Lake Ontario. A moderate high predominated the Atlantic and Gulf states from Maine to Louisiana.

July 17, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 10,900 feet (3,322 meters); wire out at maximum altitude was 6,500 feet (1,981 meters).

At the beginning of the flight occasional thunder was heard and light rain was falling. At 11:25 a. m. rain ceased. Clouds were moving from the southwest.

At the time of the flight high pressure prevailed generally in all districts, except from the Lake region eastward, which was dominated by a low, central over the St. Lawrence Valley.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.					
	Air temperature.		Rel. hum.	Wind.		Height.	Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.					Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
July 18, 1907.														
7:19 a. m...	72.0	22.2	....	nw.	15	6.7	1,725	526	72.0	22.2	.....	nw.	15	6.7
7:33 a. m...	72.7	22.6	....	nw.	15	6.7	3,434	1,047	71.1	21.7	.....	nw.	.....	.....
8:00 a. m...	74.0	23.3	....	nw.	16	7.2	4,939	1,506	69.3	20.7	.....	w.	.....	.....
9:16 a. m...	77.3	25.1	....	nw.	15	6.7	6,216	1,895	62.5	16.9	.....	w.	.....	.....
9:43 a. m...	77.2	25.2	....	nw.	14	6.3	7,489	2,283	57.6	14.2	.....	w.	.....	.....
10:18 a. m...	78.5	25.8	....	nw.	14	6.3	1,725	526	78.5	25.8	.....	nw.	14	6.3
July 19, 1907.														
7:20 a. m...	69.0	20.6	....	nw.	10	4.5	1,725	526	69.0	20.6	.....	nw.	10	4.5
8:24 a. m...	72.0	22.2	....	nw.	10	4.5	3,584	1,092	67.0	19.4	.....	ne.	.....	.....
9:06 a. m...	74.0	23.3	....	nne.	8	3.6	1,725	526	74.0	23.3	.....	nne.	8	3.6
July 20, 1907.														
9:00 a. m...	69.0	20.6	....	w.	13	5.8	1,725	526	69.0	20.6	.....	w.	13	5.8
9:19 a. m...	70.0	21.1	....	w.	13	5.8	4,065	1,239	62.7	17.1	.....	wnw	.....	.....
9:38 a. m...	71.0	21.7	....	nw.	11	4.9	5,404	1,647	60.4	15.8	.....	wnw	.....	.....
10:10 a. m...	73.0	22.8	....	nw.	12	5.4	7,839	2,389	53.5	11.9	.....	w.	.....	.....
10:35 a. m...	75.2	24.0	....	nw.	11	4.9	8,693	2,650	53.7	12.1	.....	wsw.	.....	.....
10:45 a. m...	75.5	24.2	....	nw.	12	5.4	8,181	2,494	53.7	12.1	.....	wsw.	.....	.....
10:48 a. m...	75.5	24.2	....	nw.	12	5.4	8,332	2,540	51.0	10.6	.....	wsw.	.....	.....
11:01 a. m...	73.7	23.2	....	nw.	12	5.4	6,621	2,018	56.4	13.6	.....	w.	.....	.....
11:32 a. m...	75.0	23.9	....	nw.	12	5.4	1,725	526	75.0	23.9	.....	nw.	12	5.4

July 18, 1907.—The flight was made with three kites having a total lifting surface of 210 square feet (19.4 square meters).

The maximum amount of wire out was 11,000 feet (3,353 meters); wire out at maximum altitude was 9,000 feet (2,743 meters).

During the flight the sky was partly cloudy, with alto-cumulus from the west. Above a level of 3,000 feet (914 meters) the kites indicated a northwest wind; below this level a thin stratum of very weak wind.

At the time of the flight the station was midway between a low of moderate intensity, central over the St. Lawrence Valley, and an extensive area of high pressure covering the territory south of the Great Lakes and east of the Mississippi River.

July 19, 1907.—The flight was made with two kites having a total lifting surface of 189 square feet (17.5 square meters).

The maximum amount of wire out was 4,000 feet (1,219 meters).

Light fog was observed during the early morning, but disappeared shortly before kite flight. During the flight the lower clouds increased gradually to 8/10 stratus from the north.

At the time of the flight a high of moderate intensity was central about 250 miles (400 kilometers) north of the station. A second high dominated the weather of the Gulf States, while a well-defined low, accompanied by thunderstorms, prevailed over the upper Lake region.

July 20, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 13,500 feet (4,115 meters); wire out at maximum altitude was 13,500 feet (4,115 meters).

At the beginning of the flight rain was falling, but stopped soon thereafter. At 10:25 a. m. low clouds past beneath lowermost kite at an elevation of 3,822 feet (1,165 meters).

At the time of the flight the station was directly south of a well-defined low, central over the St. Lawrence Valley. An extensive area of high pressure dominated the weather of the Mississippi Valley and Gulf States.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
July 22, 1907.														
10:36 a. m..	72.4	22.4	78	s.	14	6.3	1,725	526	72.4	22.4	78	s.	14	6.3
10:40 a. m...	72.4	22.4	78	s.	14	6.3	2,260	689	69.7	20.9	73	s.	.....	.....
11:10 a. m...	73.0	22.8	75	s.	13	5.8	3,902	1,189	68.9	20.5	75	w.	.....	.....
11:25 a. m...	73.0	22.8	75	s.	12	5.4	6,158	1,877	61.8	16.6	68	w.	.....	.....
12:00 m.	74.0	23.3	70	.....	10	4.5	8,975	2,736	53.8	12.1	63	w.	.....	.....
12:22 p. m...	74.3	23.5	70	.....	9	4.0	11,065	3,373	42.7	5.9	68	w.	.....	.....
2:20 p. m...	78.0	25.6	70	.....	9	4.0	11,749	3,581	39.0	3.9	90	wnw.	.....	.....
4:20 p. m...	73.6	23.1	70	nw.	7	3.1	13,215	4,028	43.2	6.2	60	nw.	.....	.....
5:27 p. m...	79.5	26.4	73	nw.	7	3.1	10,176	3,102	50.9	10.5	87	nw.	.....	.....
5:50 p. m...	79.3	26.3	75	nw.	7	3.1	5,942	1,811	62.5	16.9	88	w.	.....	.....
6:07 p. m...	79.0	26.1	75	nw.	6	2.7	1,725	526	79.0	26.1	75	nw.	6	2.7
July 23, 1907.														
8:02 a. m...	72.5	22.5	78	nw.	18	8.0	1,725	526	72.5	22.5	78	nw.	18	8.0
8:07 a. m...	73.0	22.8	78	nw.	20	8.9	3,225	983	66.0	18.9	85	nw.	.....	.....
8:13 a. m...	73.0	22.8	78	nw.	22	9.8	4,012	1,223	63.6	17.0	78	nw.	.....	.....
8:30 a. m...	73.0	22.8	76	nw.	25	11.2	4,972	1,515	60.1	15.6	75	nw.	.....	.....
8:49 a. m...	73.0	22.8	73	nw.	23	10.3	7,481	2,280	58.0	14.4	35	nw.	.....	.....
9:13 a. m...	74.0	23.3	74	nw.	21	9.4	8,690	2,649	54.8	12.7	28	nw.	.....	.....
9:43 a. m...	74.0	23.3	72	nw.	21	9.4	10,252	3,125	51.4	10.8	.....	wnw.	.....	.....
10:37 a. m...	75.5	24.0	70	nw.	22	9.8	13,125	4,000	39.2	4.0	.....	w.	.....	.....
11:38 a. m...	77.0	25.0	64	nw.	18	8.0	12,481	3,804	42.1	5.6	.....	w.	.....	.....
12:40 p. m...	78.6	25.9	60	nw.	15	6.7	9,614	2,930	52.2	11.2	.....	nw.	.....	.....
12:57 p. m...	79.0	26.1	60	nw.	16	7.2	8,911	2,716	55.1	12.8	.....	nw.	.....	.....
1:37 p. m...	79.0	26.1	60	nw.	18	8.0	9,312	2,838	53.2	11.8	.....	nw.	.....	.....
1:41 p. m...	79.0	26.1	60	nw.	18	8.0	8,951	2,728	53.9	12.2	.....	nw.	.....	.....
1:47 p. m...	79.0	26.1	60	nw.	17	7.6	8,282	2,524	50.0	10.0	.....	nw.	.....	.....
2:05 p. m...	78.0	25.6	60	nw.	17	7.6	9,210	2,807	50.6	10.3	50	nw.	.....	.....
2:30 p. m...	77.5	25.3	62	nw.	16	7.2	7,755	2,364	51.2	10.7	83	nw.	.....	.....
2:42 p. m...	77.0	25.0	63	nw.	14	6.3	7,689	2,344	51.2	10.7	88	nw.	.....	.....
2:51 p. m...	77.0	25.0	60	nw.	13	5.8	6,599	2,011	52.2	11.2	95	nw.	.....	.....
3:19 p. m...	77.5	25.3	65	nw.	14	6.3	1,725	526	77.5	25.3	65	nw.	14	6.3

July 22, 1907.—The flight was made with three kites having a total lifting surface of 210 square feet (19.4 square meters).

The maximum altitude was reached with 19,550 feet (5,959 meters) of wire out; this was the maximum of wire used in the flight.

At the beginning of the flight the weather was partly cloudy, but cleared during the afternoon.

The flight was made in the southeast quadrant of a low central over Lake Huron and northwest of a minor low central over North Carolina.

July 23, 1907.—The flight was made with three kites having a total lifting surface of 210 square feet (19.4 square meters).

The maximum amount of wire out was 28,000 feet (8,534 meters); wire out at maximum altitude was 22,000 feet (6,706 meters).

The weather during the flight was generally clear. Light haze observed during the day.

At the time of the flight the station was in the southwest quadrant of an area of low pressure central over Boston, Mass. An extensive high occupied the whole Mississippi Valley from the Gulf of Mexico to the Great Lakes.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
July 24,1907.	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
7:25 a. m...	70.3	21.3	78	wnw.	11	4.9	1,725	526	70.3	21.3	78	wnw.	11	4.9
7:42 a. m...	70.6	21.5	79	wnw.	10	4.5	2,503	763	68.7	20.4	78	wnw.	.....	.....
8:01 a. m...	72.0	22.2	78	wnw.	10	4.5	3,791	1,155	63.9	17.7	74	wnw.	.....	.....
8:38 a. m...	71.0	21.7	79	wnw.	12	5.4	4,720	1,439	59.2	15.1	78	wnw.	.....	.....
10:11 a. m...	74.0	23.3	70	wnw.	12	5.4	5,336	1,626	59.0	15.0	30	nw.	.....	.....
11:15 a. m...	76.7	24.8	67	wnw.	13	5.8	8,067	2,459	51.7	10.9	45	nw.	.....	.....
12:15 p. m...	78:5	25.8	52	wnw.	13	5.8	8,105	2,470	50.2	10.1	46	nw.	.....	.....
12:51 p. m...	79.5	26.4	53	wnw.	10	4.5	7,942	2,421	52.8	11.6	46	nw.	.....	.....
1:23 p. m...	79.7	26.5	50	w.	8	3.6	1,725	526	79.7	26.5	50	w.	8	3.6
July 25,1907.														
7:29 a. m...	71.8	22.1	80	nw.	18	8.0	1,725	526	71.8	22.1	80	nw.	18	8.0
7:37 a. m...	71.8	22.1	80	nw.	18	8.0	4,180	1,274	64.3	17.9	.....	nw.	.....	.....
7:50 a. m...	71.3	21.8	82	nw.	19	8.5	5,372	1,637	66.1	18.9	.....	nw.	.....	.....
8:20 a. m...	72.5	22.5	80	nw.	21	9.4	7,975	2,431	57.6	14.2	.....	nw.	.....	.....
9:26 a. m...	74.0	25.3	78	nw.	19	8.5	7,568	2,307	60.2	15.7	.....	nw.	.....	.....
10:30 a. m...	76.7	24.8	76	nw.	18	8.0	8,265	2,519	53.9	12.2	.....	nw.	.....	.....
11:22 a. m...	78.0	25.6	69	nw.	15	6.7	4,644	1,416	65.3	18.5	.....	nw.	.....	.....
11:32 a. m...	78.5	25.8	71	nw.	13	5.8	1,725	526	78.5	25.8	71	nw.	13	5.8
2d flight.														
11:53 a. m...	78.6	25.9	70	nw.	13	5.8	1,725	526	78.6	25.9	70	nw.	13	5.8
12:15 p. m...	79.5	26.4	66	nw.	13	5.8	4,120	1,256	67.8	19.9	.....	wnw	.....	.....
1:09 p. m...	81.0	27.2	61	nw.	12	5.4	6,668	2,032	59.5	15.3	.....	wnw	.....	.....
2:02 p. m...	80.3	26.8	67	nw.	6	2.7	6,194	1,888	61.0	16.1	.....	wsw	.....	.....
2:40 p. m...	83.5	28.6	63	sw.	4	1.8	1,725	526	83.5	28.6	63	sw.	4	1.8

July 24, 1907.—The flight was made with three kites having a total lifting surface of 257 square feet (23.8 square meters).

The maximum altitude was reached when the greatest amount of wire was out, the amount being 12,000 feet (3,658 meters).

At the beginning of the flight about 2/10 strato-cumulus clouds from west-northwest were observed, slowly diminishing. At an altitude of 5,468 feet (1,667 meters) the uppermost kite was in the base of cumulus clouds, about 2/10 being observed.

At the time of the flight the station was midway between an area of low pressure central over eastern Massachusetts and a high central over northern Alabama. A second low was central over northern Michigan and approaching, with numerous thunderstorms in its southern and western portions.

July 25, 1907.—The first flight was made with four kites having a total lifting surface of 278 square feet (25.7 square meters).

The maximum amount of wire out was 20,000 feet (6,096 meters); wire out at maximum altitude was 19,000 feet (5,791 meters).

The second flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 8,000 feet (2,438 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

The weather was clear during both flights.

At the time of the flights the station was to the southwest of a low central over the lower St. Lawrence Valley, and near the center of a high reaching from the upper Great Lakes to Florida. A thunderstorm occurred at the station between 3:30 and 4:30 p. m.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.					
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
July 26, 1907.														
7:12 a. m....	70.3	21.3	80	nw.	25	11.2	1,725	526	70.3	21.3	80	nw.	25	11.2
7:18 a. m....	70.3	21.3	80	nw.	24	10.7	3,799	1,158	68.4	20.2	.....	nw.	.....	.....
7:26 a. m....	71.0	21.7	77	nw.	23	10.3	3,981	1,213	70.0	21.1	.....	wnw	.....	.....
7:41 a. m....	70.3	21.3	80	nw.	22	9.8	5,866	1,788	65.1	18.4	.....	w.	.....	.....
7:53 a. m....	70.3	21.3	80	nw.	20	8.9	6,025	1,836	64.2	17.9	.....	w.	.....	.....
8:14 a. m....	70.4	21.3	79	nw.	22	9.8	8,008	2,441	58.0	14.4	.....	w.	.....	.....
8:39 a. m....	69.5	20.8	83	nw.	18	8.0	11,334	3,455	44.8	7.1	.....	w.	.....	.....
8:51 a. m....	70.0	21.1	83	nw.	20	8.9	12,405	3,781	40.2	4.5	....,	w.	.....	.....
9:07 a. m....	70.0	21.1	90	nw.	23	10.3	13,544	4,128	36.7	2.7	....	w.	.....	.....
9:11 a. m....	69.0	20.6	90	nw.	23	10.3	14,141	4,310	34.4	1.4	.....	w.	.....	.....
2d flight.														
5:46 p. m....	74.1	23.4	74	nw.	21	9.4	1,725	526	74.1	23.4	74	nw.	21	9.4
6:00 p. m. ..	74.5	23.6	74	nw.	21	9.4	4,885	1,489	60.3	15.7	85	nw.	.....	.....
6:17 p. m....	73.6	23.1	70	nw.	30	13.4	6,481	1,975	56.5	13.6	70	nw.	.....	.....
6:39 p. m....	72.5	22.5	75	nw.	27	12.1	4,212	1,284	63.5	17.5	84	nw.	.....	.....
7:09 p. m....	71.2	21.8	77	nw.	29	13.0	1,725	526	71.2	21.8	77	nw.	29	13.0
July 27, 1907.														
7:23 a. m....	55.7	13.2	71	nw.	22	9.8	1,725	562	55.7	13.2	71	nw.	22	9.8
7:29 a. m....	56.2	13.4	72	nw.	21	9.4	4,080	1,244	52.4	11.3	.....	nnw	.....	.....
7:45 a. m....	56.7	13.7	72	nw.	22	9.8	5,970	1,820	56.9	13.8	.....	nnw	.....	.....
7:54 a. m....	57.0	13.9	72	nw.	22	9.8	6,320	1,926	56.0	13.3	.....	nnw	.....	.....
7:59 a. m....	57.7	14.3	68	nw.	23	10.3	6,525	1,989	56.0	13.3	.....	nw.	.....	.....
8:05 a. m....	58.0	14.4	68	nw.	22	9.8	6,638	2,023	56.0	13.3	....	nw.	.....	.....
8:13 a. m....	58.3	14.6	67	nw.	21	9.4	8,395	2,559	51.5	10.8	.....	nw.	.....	.....
8:40 a. m....	60.0	15.6	63	nw.	21	9.4	9,237	2,816	49.9	9.9	.....	nw.	.....	.....
8:45 a. m....	59.5	15.3	63	nw.	24	10.7	9,690	2,954	49.9	9.8	.....	wnw	.....	.....
9:47 a. m....	62.4	16.9	56	nw.	17	7.6	12,241	3,731	38.0	3.3	.....	wnw	.....	.....
11:10 a. m....	64.5	18.1	53	nw.	19	8.5	7,070	2,155	54.6	12.6	.....	nnw	.....	.....
11:40 a. m....	65.5	18.6	52	nw.	24	10.7	4,654	1,419	59.8	15.4	.....	nnw	.....	.....
11:50 a. m....	65.9	18.8	51	nw.	24	10.7	4,291	1,308	61.6	16.4	... .	nnw	.....	.....
11:53 a. m....	66.3	19.1	51	nw.	24	10.7	3,768	1,148	57.1	13.9	.....	nnw	.....	.....
12:06 p. m....	66.7	19.3	50	nw.	24	10.7	1,725	526	66.7	19.3	50	nw.	24	10.7

July 26, 1907.—The first flight was made with three kites having a total lifting surface of 204 square feet (18.9 square meters).

The maximum amount of wire out was 22,500 feet (6,850 meters); wire out at maximum altitude was 22,500 feet (6,858 meters).

Cloudy during the flight, with rain before end of flight.

The second flight was made with one kite having a lifting surface of 74 square feet (6.8 square meters).

The maximum altitude was reached when the maximum amount of wire, 7,500 feet (2,286 meters), was out.

Cloudiness prevailed during the flight.

At the time of the flights the station was in the south-southwest portion of a marked low central over Montreal, and embracing the whole northeast quarter of the United States. It was accompanied by a large number of thunderstorms.

July 27, 1907.—The flight was made with two kites having a total lifting surface of 142 square feet (13.1 square meters).

The maximum altitude was reached when the maximum amount of wire, 18,500 feet (5,639 meters), was out.

Clear weather prevailed thruout the flight.

At the time of the flight the station was directly in front of a high central over Illinois and Lake Michigan. A secondary low was central over Cape Hatteras, while a very marked depression was central over the St. Lawrence Valley.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
July 29, 1907.														
3:16 p. m...	67.3	19.6	....	nw.	13	5.8	1,725	526	67.3	19.6	.....	nw.	13	5.8
3:31 p. m...	68.0	20.0	....	nw.	11	4.9	3,580	1,091	63.7	17.6	.....	nnw.	.....	.....
3:43 p. m...	68.7	20.4	....	nw.	13	5.8	5,486	1,672	59.6	15.3	.....	nw.	.....	.....
4:14 p. m...	68.0	20.0	....	nw.	14	6.3	6,725	2,050	55.3	12.9	.....	nw.	.....	.....
5:05 p. m...	69.5	20.8	....	nw.	10	4.5	1,725	526	69.5	20.8	.....	nw.	10	4.5
July 30, 1907.														
8:59 a. m...	69.0	20.6	80	nw.	17	7.6	1,725	526	69.0	20.6	.....	nw.	17	7.6
9:23 a. m...	70.0	21.1	81	nw.	17	7.6	4,714	1,437	61.1	16.2	.....	nw.	.....	.....
9:51 a. m...	71.0	21.7	79	nw.	15	6.7	6,298	1,920	54.4	12.4	.....	wnw	.....	.....
10:30 a. m...	73.2	22.9	78	nw.	15	6.7	1,725	526	73.2	22.9	.....	nw.	15	6.7
July 31, 1907.														
7:25 a. m...	62.2	16.8	79	nw.	11	4.9	1,725	526	62.2	16.8	79	nw.	11	4.9
7:38 a. m...	63.0	17.2	75	nw.	11	4.9	3,608	1,100	60.2	15.7	.....	nw.	.....	.....
9:30 a. m...	67.5	19.7	65	nw.	8	3.6	4,981	1,518	54.8	12.7	....	nnw	.....	.....
9:55 a. m...	69.0	20.6	55	nw.	8	3.6	1,725	526	69.0	20.6	55	nw.	8	3.6

July 29, 1907.—The flight was made with one kite having a lifting surface of 121 square feet (11.2 square meters).

The maximum altitude was reached when the maximum amount of wire, 7,500 feet (2,286 meters), was out.

Dense fog began at 8:50 a. m. and lifted at 3 p. m. Clouds passed under the kite at elevations of 2,500 and 6,000 feet (762 and 1,829 meters).

At the time of the flight the whole country east of the Mississippi River, excepting Florida, was dominated by an extensive area of low pressure, central north of the lower Lake region. This well-defined low was accompanied by two minor centers, one over the station and the other over western Tennessee. Rains were general in the South Atlantic and Gulf States.

July 30, 1907.—The flight was made with one kite having a lifting surface of 121 square feet (11.2 square meters).

The maximum amount of wire out was 7,500 feet (2,286 meters); wire out at maximum altitude was 7,250 feet (2,210 meters).

The sky was very nearly clear at 7:30 a. m. At an altitude of 6,300 feet (1,920 meters) low clouds were observed some distance below the kite. At an altitude of 3,420 feet (1,042 meters) the kite was in thin clouds.

At the time of the flight the station was midway between an extensive area of high pressure, central over eastern Kansas, and an area of low pressure, central over the northern portion of the New England States. Fair weather, with moderate temperature, prevailed at the station.

July 31, 1907.—The flight was made with three kites having a total lifting surface of 210 square feet (19.4 square meters).

The maximum amount of wire out was 8,000 feet (2,438 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

Clear weather prevailed thruout the flight.

At the time of the flight the entire portion of the United States west of the Mississippi River, except Arizona and southern California, was dominated by an area of high pressure central over Montana and Wyoming. An area of low pressure, accompanied by rain, was moving off to the northeastward over the New England States. Fair weather prevailed over the territory surrounding the station.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters	° F.	° C.	%		Miles p. h. / Met's p. s.
Aug. 1, 1907.												
9:33 a. m...	69.0	20.6	81	w.	9 / 4.0	1,725	526	69.0	20.6	81	w.	9 / 4.0
10:01 a. m...	69.2	20.7	79	nw.	12 / 5.4	3,360	1,024	64.9	18.3	.....	nw.	..... / .....
10:42 a. m...	71.5	21.9	79	nw.	6 / 2.7	1,725	526	71.5	21.9	79	nw.	6 / 2.7
Aug. 2, 1907.												
7:18 a. m..	67.0	19.4	....	w.	16 / 7.2	1,725	526	67.0	19.4	.....	w.	16 / 7.2
7:30 a. m...	68.0	20.0	....	w.	16 / 7.2	3,629	1,106	64.5	18.0	.....	w.	..... / .....
7:46 a. m...	69.0	20.6	....	w.	18 / 8.0	5,035	1,535	61.4	16.3	.....	w.	..... / .....
8:09 a. m...	70.5	21.4	....	w.	20 / 8.9	7,072	2,156	53.0	11.6	.....	wsw.	..... / .....
8:45 a. m...	70.4	21.3	....	nw.	23 / 10.3	9,157	2,791	45.4	7.4	.....	sw.	..... / .....
9:58 a. m...	73.7	23.2	....	nw.	19 / 8.5	12,279	3,742	34.1	1.1	.....	sw.	..... / .....
10:21 a. m...	75.0	23.9	....	w.	17 / 7.6	9,965	3,037	41.8	5.4	.....	wsw.	..... / .....
10:45 a. m...	75.0	23.9	....	w.	13 / 5.8	7,197	2,194	53.0	11.6	.....	w.	..... / .....
11:00 a. m...	75.5	24.2	....	w.	12 / 5.4	5,044	1,537	61.6	16.4	.....	w.	..... / .....
11:11 a. m...	76.0	24.4	....	w.	12 / 5.4	1,725	526	76.0	24.4	.....	w.	12 / 5.4
Aug. 3, 1907.												
10:15 a. m...	66.0	18.9	59	nw.	13 / 5.8	1,720	526	66.0	18.9	59	nw.	13 / 5.8
10:32 a. m...	68.0	20.0	59	nw.	14 / 6.3	3,119	951	63.2	17.3	.....	wnw	..... / .....
11:30 a. m...	68.0	20.0	55	nw.	11 / 4.9	5,635	1,718	54.2	21.3	.....	w.	..... / .....
12:06 p. m...	70.0	21.1	55	nw.	10 / 4.5	7,735	2,358	48.8	9.3	.....	ssw	..... / .....
12:40 p. m...	71.0	21.7	54	nw.	7 / 3.1	1,725	526	71.0	21.7	54	nw.	7 / 3.1

August 1, 1907.—The flight was made with one kite having a lifting surface of 121 square feet (11.2 square meters).

The maximum amount of wire out was 3,400 feet (1,036 meters); wire out at maximum altitude was 2,500 feet (762 meters).

From 8 to 9/10 alto-cumulus and strato-cumulus clouds, moving from the west, were observed during the flight.

At the time of the flight an area of moderately low pressure was central over the station; a depression of greater intensity prevailed over the upper Great Lakes. Scattered thunderstorms occurred in the regions that were influenced by the depressions. An area of high pressure was central over Canada, just north of Montana.

August 2, 1907.—The flight was made with three kites having a total lifting surface of 210 square feet (19.4 square meters).

The maximum amount of wire out was 18,500 feet (5,639 meters); wire out at maximum altitude was 18,500 feet (5,639 meters).

At the time of the flight the sky was partly covered by strato-cumulus and alto-cumulus clouds; about 5/10 at the beginning and gradually diminishing to about 1/10 at the close of the flight.

An area of low pressure was central north of Lake Ontario on the morning of the flight. This was followed by a high, central over the Rocky Mountain Plateau.

August 3, 1907.—The flight was made with two kites having a total lifting surface of 189 square feet (17.5 square meters).

The maximum amount of wire out was 7,500 feet (2,286 meters); wire out at maximum altitude was 7,500 feet (2,286 meters).

Upper clouds were observed during the entire flight; the average amount being 5/10.

At the time of the flight an area of low pressure was passing up the St. Lawrence Valley, while a secondary low was located just south of the station over eastern Virginia and North Carolina. An area of high pressure prevailed over the middle Mississippi and lower Missouri valleys.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m, 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity						Dir.	Velocity.
Aug. 5, 1907.	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
10:20 a. m...	64.4	18.0	...	se.	16 / 7.2	1,725	526	64.4	18.0	.....	se.	16 / 7.2
10:33 a. m...	64.5	18.1	....	se.	11 / 4.9	3,771	1,149	60.4	15.8	.....	ssw	..... / .....
10:55 a. m...	65.0	18.3	....	s.	12 / 5.4	5,469	1,667	53.4	11.9	.....	sw.	..... / .....
11:05 a. m...	65.1	18.4	....	s.	13 / 5.8	6,450	1,966	49.4	9.7	.....	sw.	..... / .....
11:40 a. m...	65.6	18.7	....	sse	15 / 6.7	2,988	911	63.8	17.7	.....	ssw	..... / .....
11:53 a. m...	65.7	18.7	....	sse	16 / 7.2	1,725	526	65.7	18.7	.....	sse	16 / 7.2
Aug. 6, 1907.												
3:32 p. m...	81.5	27.5	....	nw.	11 / 4.9	1,725	526	81.5	27.5	.....	nw.	11 / 4:9
3:42 p. m...	80.0	26.7	....	nw.	12 / 5.4	3,905	1,190	70.2	21.2	.....	nw.	..... / .....
4:05 p. m.	80.0	26.7	....	nw.	13 / 5.8	4,949	1,508	64.8	18.2	.....	nw.	..... / .....
4:46 p. m...	79.5	26.4	....	nw.	13 / 5.8	6,685	2,038	56.1	13.4	.....	wnw	..... / .....
5:18 p. m...	78.3	26.0	....	nw.	13 / 5.8	1,725	526	78.8	26.0	.....	nw.	13 / 5.8
Aug. 7, 1907.												
7:30 a. m...	68.7	20.4	....	nw.	11 / 4.9	1,725	526	68.7	20.4	.....	nw.	11 / 4.9
7:40 a. m...	69.0	20.6	....	nw.	11 / 4.9	2,890	881	69.0	20.6	.....	nnw	..... / .....
7.58 a. m...	70.3	21.3	....	nw.	11 / 4.9	4,287	1,307	64.0	17.8	....	nnw	..... / .....
8:48 a. m...	71.3	21.8	....	nw.	11 / 4.9	4,685	1,428	64.9	18.3	.....	n.	..... / .....
10:10 a. m...	74.0	23.3	....	nw.	12 / 5.4	6,726	2,050	58.6	14.8	.....	n.	..... / .....
10:15 a. m...	74.5	23.6	....	nw.	14 / 6.3	5,815	1,772	66.4	19.1	.....	n.	..... / .....
10:40 a. m...	75.0	23.9	....	nw.	14 / 6.3	1,725	526	75.0	23.9	. ...	nw.	14 / 6.3

August 5, 1907.—The flight was made with two kites having a total lifting surface of 195 square feet (18.0 square meters).

The maximum amount of wire out was 7,500 feet (2,286); wire out at maximum altitude was 7,500 feet (2,286 meters).

The sky was obscured by alto-stratus clouds during the entire flight.

At the time of the flight the station was near the center of an area of high pressure covering the Atlantic coast. A barometric depression of considerable extent was central over the western portion of the upper Lake region.

August 6, 1907.—The flight was made with two kites having a total lifting surface of 189 square feet (17.5 square meters).

The maximum amount of wire out was 7,500 feet (2,286 meters); wire out at maximum altitude was 6,760 feet (2,057 meters).

About 1/10 strato-cumulus clouds from the north-northwest were observed at the beginning of the flight, but they gradually disappeared before the close.

At the time of the flight an area of low pressure, central over Minnesota, covered the upper Mississippi Valley and the upper Lake region. Cloudy weather with occasional showers prevailed over a greater part of the Atlantic coast. A high of moderate intensity was central over the eastern coast of Florida.

August 7, 1907.—The flight was made with three kites having a total lifting surface of 263 square feet (24.3 square meters).

The maximum amount of wire out was 9,000 feet (2,743 meters); wire out at maximum altitude was 6,750 feet (2,057 meters).

The sky was partly covered by alto-stratus clouds, moving from the northwest, and gradually increasing in amount thruout the flight.

At the time of the flight moderately high pressure covered the entire United States, with a maximum over the southeastern part. Heavy rain had occurred during the previous twenty-four hours in the middle Mississippi Valley and along the south Atlantic coast. An area of low pressure was central over Canada, north of Lake Ontario.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Aug. 8, 1907.	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	°%		Miles p. h.	Met's p. s.
7:18 a. m...	68.0	20.0	....	nw.	19	8.5	1,725	526	68.0	20.0	.....	nw.	19	8.5
7:31 a. m...	67.5	19.7	....	nw.	19	8.5	3,357	1,021	67.2	19.6	.....	nnw	.....	.....
7:42 a. m...	68.0	20.0	....	nw.	20	8.9	3,953	1,205	69.4	20.8	.....	nw.	.....	.....
9:01 a. m...	71.5	21.9	....	nw.	15	6.7	4,843	1,476	64.7	18.2	.....	nw.	.....	.....
9:16 a. m...	72.3	22.4	....	nw.	15	6.7	1,725	526	72.3	22.4	.....	nw.	15	6.7
2d flight.														
9:21 a. m...	72.0	22.2	....	nw.	15	6.7	1,725	526	72.0	22.2	.....	nw.	15	6.7
10:16 a. m...	75.0	23.9	....	nw.	14	6.3	2,925	892	75.0	23.9	.....	nnw	.....	.....
10:24 a. m...	75.0	23.9	...	nw.	13	5.8	1,725	526	75.0	23.9	.....	nw.	13	5.8
Aug. 9, 1907.														
7:29 a. m...	69.2	20.7	....	se.	9	4.0	1,725	526	69.2	20.7	....	se.	9	4.0
7:52 a. m...	69.0	20.6	....	se.	9	4.0	2,980	908	65.0	18.4	.. .	se.	.....	.....
9:54 a. m...	67.5	19.7	...	se.	9	4.0	3,771	1,149	62.5	17.0	.....	se.	.....	.....
10:41 a. m...	66.0	18.9	....	se.	13	5.8	6,784	2,068	51.6	10.9	.....	ssw	.....	.....
10:53 a. m...	66.0	18.9	....	se.	12	5.4	7,598	2,316	51.3	10.7	.....	s.	.....	.....
11:30 a. m...	66.4	19.1	....	e.	12	5.4	4,208	1,283	72.1	22.3	.....	sse	.....	.....
11:34 a. m...	66.4	19.1	....	se.	12	5.4	3,011	918	66.4	19.1	.....	se.	.....	.....
11:43 a. m...	66.4	19.1	....	e.	17	7.6	1,725	526	66.4	19.1	.....	e.	17	7.6

August 8, 1907.—The first flight was made with four kites having a total lifting surface of 278 square feet (25.7 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 5,000 feet (1,524 meters).

A few strato-cumulus clouds from the northwest, gradually increasing, were observed during the flight.

The second flight was made with two kites having a total lifting surface of 195 square feet (18.0 square meters).

The maximum amount of wire out was 4,000 feet (1,219 meters); wire out at maximum altitude was 2,500 feet (762 meters).

The strato-cumulus clouds observed at the time of the former flight were still increasing, about 3/10 being visible, moving from the northwest.

At the time of the flights the station was at the southern part of a dividing line between an area of high pressure, central over Lake Michigan, and an area of low pressure, central over southern Maine. Another area of low pressure was central over eastern Nebraska and a moderate high centered over Colorado.

August 9, 1907.—The flight was made with three kites having a total lifting surface of 257 square feet (23.8 square meters).

The maximum amount of wire out was 8,500 feet (2,591 meters); wire out at maximum altitude was 8,500 feet (2,591 meters).

Flight started in light rain, with thunderstorm in valley to the southeast and low fog in valley to the northwest. Rain ended at 8:04 a. m. and the sky was entirely overcast with low clouds, Dense fog with frequent sprinkles of rain prevailed from 9:53 to 11:37 a. m. Fog then became light and continued so until end of flight. Occasional thunder was heard during the entire flight.

At the time of the flight the station was to the north of a center of relatively low pressure over North Carolina, and a moderate high was moving over the New England States. An extensive area of low pressure of considerable intensity was central over the Dakotas.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity
Aug. 10, 1907	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
8:11 a. m...	64.0	17.8	....	e.	8	3.6	1,725	526	64.0	17.8	.....	e.	8	3.6
8:28 a. m...	64.4	17.8	....	ene	8	3.6	3,844	1,172	56.8	13.8	.....	e.	.....	.....
8:54 a. m...	63.5	17.5	....	ene	8	3.6	5,361	1,634	52.7	11.5	.....	e.	.....	.....
9:10 a. m...	64.5	18.1	....	ene.	8	3.6	6,159	1,877	50.9	10.5	.....	e.	.....	.....
9:47 a. m...	65.5	18.6	....	ne.	8	3.6	7,175	2,187	47.7	8.7	.....	e.	.....	.....
10:38 a. m...	65.0	18.3	....	ne.	8	3.6	8,460	2,579	48.2	9.0	.....	ene	.....	.....
11:20 a. m...	64.4	18.0	....	ene	9	4.0	1,725	526	64.4	18.0	.....	ene	9	4.0
Aug. 12, 1907														
2:32 p. m...	79.5	26.4	....	s.	10	4.5	1,725	526	79.5	26.4	.....	s.	10	4.5
3:08 p. m...	79.4	26.3	....	s.	8	3.6	2,700	823	74.1	23.4	.....	s.	.....	.....
3:58 p. m...	79.6	26.4	....	s.	11	4.9	3,657	1,115	68.2	20.1	.....	sw.	.....	.....
4:37 p. m...	79.7	26.5	....	s.	8	3.6	5,634	1,717	64.2	17.9	.....	wsw	.....	.....
5:14 p. m...	79.0	26.1	....	s.	7	3.1	1,725	526	79.0	26.1	.....	s.	7	3.1

August 10, 1907.—The flight was made with two kites having a total lifting surface of 189 square feet (17.5 square meters).

The maximum amount of wire out was 15,000 feet (4,572 meters); wire out at maximum altitude was 12,500 feet (3,810 meters).

Light fog prevailed during the early part of the flight until 9:00 a. m. The cloudiness which was 1/10 at 9:00 a. m., increased steadily. Light rain occurred toward the end of flight.

At the time of the flight an area of low pressure was central over the Southeastern States, while high pressure prevailed over the Great Lakes.

August 12, 1907.—The flight was made with three kites having a total lifting surface of 293 square feet (27.2 square meters).

The maximum amount of wire out was 8,000 feet (2,438 meters).

The sky was about 1/10 covered with cumulus clouds during the flight.

At the time of the flight the weather over the whole eastern half of the United States was dominated by low pressure, with centers over Arkansas and Ontario. Moderately high pressure prevailed over the west, with centers over Nebraska and Washington.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.					
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Aug. 13, 1907	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
7:17 a. m...	72.0	22.2	....	wnw	24 / 10.7	1,725	526	72.0	22.2	.....	nw.	24 / 10.7
7:22 a. m...	72.0	22.2	....	nw.	24 / 10.7	3,299	1,006	70.2	21.2	.....	nw.	..... / .....
7:32 a. m...	72.3	22.4	....	nw.	25 / 11.2	3,948	1,203	70.9	21.6	.....	nw.	..... / .....
7:51 a. m...	72.7	22.6	....	nw.	25 / 11.2	4,609	1,405	70.9	21.6	.....	wnw	..... / .....
7:53 a. m...	72.7	22.6	....	nw.	25 / 11.2	4,401	1,341	72.2	22.3	.....	wnw	..... / .....
8:31 a. m...	72.5	22.5	....	nw.	26 / 11.6	3,785	1,154	77.4	25.2	.....	wnw	..... / .....
10:26 a. m...	74.5	23.6	....	nw.	19 / 8.5	6,698	2,042	58.8	14.9	.....	w.	..... / .....
10:35 a. m...	73.5	23.1	....	nw.	20 / 8.9	5,426	1,654	62.8	17.1	.....	w.	..... / .....
10:53 a. m...	73.0	22.8	...	nw.	21 / 9.4	4,302	1,311	64.8	18.7	.....	wnw	..... / .....
11:10 a. m...	72.7	22.6	....	nw.	20 / 8.9	3,594	1,095	65.1	18.4	.....	nw.	..... / .....
11:18 a. m...	72.2	22.3	....	nw.	18 / 8.0	2,832	863	66.6	19.2	.....	nnw	..... / .....
11:31 a. m...	72.2	22.2	....	nnw	18 / 8.0	1,725	526	72.0	22.2	.....	nnw	18 / 8.0
Aug. 14, 1907												
8:19 a. m...	62.3	16.8	....	nw.	14 / 6.3	1,725	526	62.3	16.8	.....	nw.	14 / 6.3
8:16 a. m...	63.0	17.2	....	nw.	15 / 6.7	3,475	1,054	59.0	15.0	.....	nw.	..... / .....
8:28 a. m...	62.8	17.1	....	nw.	17 / 7.6	5,113	1,559	55.1	12.8	.....	nw.	..... / .....
8:40 a. m...	62.8	17.1	....	nw.	18 / 8.0	5,109	1,558	55.4	13.0	.....	nw.	..... / .....
8:46 a. m...	62.8	17.1	....	nw.	17 / 7.6	6,048	1,844	59.2	15.1	.....	nw.	..... / .....
8:59 a. m...	63.8	17.7	....	nw.	17 / 7.6	6,526	1,989	56.2	13.4	.....	nw.	..... / .....
9:23 a. m...	64.0	17.8	....	nw.	16 / 7.2	3,990	1,216	57.6	14.2	.....	nnw	..... / .....
9:34 a. m...	63.5	17.5	....	nw.	16 / 7.2	2,953	899	57.8	14.3	.....	nnw	..... / .....
9:44 a. m...	63.2	17.3	....	nw.	16 / 7.2	1,725	526	63.2	17.3	....	nw.	16 / 7.2

August 13, 1907.—The flight was made with three kites having a total lifting surface of 210 square feet (19.4 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 7,500 feet (2,286 meters).

At the beginning of the flight the sky was clear, but alto-cumulus clouds moving from the northwest soon began to appear and cloudiness rapidly increased, changing to stratus from the northwest and entirely covering the sky at end of flight.

At the time of the flight the station was directly east of an area of high pressure central over Illinois, while a barometric depression of considerable intensity was central over the lower St. Lawrence Valley.

August 14, 1907.—The flight was made with one kite having a lifting surface of 74 square feet (6.8 square meters).

The maximum amount of wire out was 6,500 feet (1,981 meters); wire out at maximum altitude was 6,500 feet (1,981 meters).

During the flight the sky was partly covered by upper clouds, the amount increasing from 2/10 to 5/10.

At the time of the flight an area of low pressure was passing up the St. Lawrence Valley. A high pressure area, central over the upper Lakes, extended over the station.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.					
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Aug. 15, 1907	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
7:28 a. m...	61.0	16.1	....	ese.	10 / 4.5	1,725	526	61.0	16.1	.....	ese.	10 / 4.5
7:42 a. m...	61.5	16.4	....	ese.	8 / 3.6	3,134	955	57.6	14.2	.....	ese.	..... / .....
8:45 a. m...	62.7	17.1	....	se.	8 / 3.6	3,590	1,094	55.2	12.9	.....	se.	..... / .....
8:50 a. m...	62.8	17.1	....	se.	8 / 3.6	3,594	1,096	55.6	13.1	.....	se.	..... / .....
9:21 a. m...	63.0	17.2	....	se.	12 / 5.4	3,876	1,181	54.7	12.6	.....	se.	..... / .....
9:53 a. m...	64.0	17.8	....	se.	14 / 6.3	3,825	1,166	58.3	14.6	.....	se.	..... / .....
10:09 a. m...	64.7	18.2	....	se.	14 / 6.3	1,725	526	64.7	18.2	.....	se.	14 / 6.3
Aug. 16, 1907												
7:19 a. m...	60.4	15.8	....	sse.	16 / 7.2	1,725	526	60.4	15.8	.....	sse.	16 / 7.2
7:20 a. m...	60.4	15.8	....	see.	16 / 7.2	2,400	730	59.5	15.3	.....	sse.	..... / .....
7:23 a. m...	60.5	15.8	....	sse.	17 / 7.6	3,138	956	62.9	17.2	.....	ssw.	..... / .....
7:30 a. m...	60.5	15.8	....	sse.	17 / 7.6	3,383	1,031	63.1	17.3	.....	ssw.	..... / .....
7:35 a. m...	61.0	16.1	....	sse.	18 / 8.0	3,916	1,194	64.0	17.8	.....	sw.	..... / .....
7:45 a. m...	61.0	16.1	....	sse.	18 / 8.0	4,575	1,394	57.5	14.2	.....	sw.	..... / .....
7:52 a. m...	61.0	16.1	....	sse.	18 / 8.0	5,137	1,566	60.0	15.6	.....	sw.	..... / .....
8:00 a. m...	60.6	15.9	...	sse.	20 / 8.9	5,210	1,588	60.7	16.0	.....	sw.	..... / .....
9:08 a. m...	63.1	17.3	....	sse.	20 / 8.9	6,276	1,913	57.8	14.4	.....	wsw.	..... / .....
10:04 a. m...	65.7	18.7	....	sse.	24 / 10.7	1,725	526	65.7	18.7	.....	sse.	24 / 10.7

August 15, 1907.—The flight was made with three kites having a total lifting surface of 257 square feet (23.8 square meters).

The maximum amount of wire out was 6,000 feet (1,829 meters); wire out at maximum altitude was 5,000 feet (1,524 meters).

The sky was clear during the entire flight.

During the flight the weather at the station was dominated by an area of high pressure central over the Middle Atlantic States and the St. Lawrence Valley. An area of low pressure was central over North Dakota.

August 16, 1907.—The flight was made with two kites having a total lifting surface of 142 square feet (13.1 square meters).

The maximum amount of wire out was 10,500 feet (3,200 meters); wire out at maximum altitude was 8,000 feet (2,438 meters).

At the beginning of the flight 3/10 alto-cumulus and 2/10 alto-stratus clouds were observed, moving from the west-northwest; these slowly diminished to 1/10 alto-cumulus from the west-northwest, and 2/10 stratus from the south-southwest at end of flight.

At the time of the flight an area of low pressure, central over Lake Superior, influenced the weather over the entire Lake region and upper Mississippi Valley. The station was in the southwestern part of an area of high pressure that was passing off to sea over the New England and Middle Atlantic States.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Aug. 17, 1907	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met.s p. s.
7:22 a. m....	69.0	20.6	....	wnw	12	5.4	1,725	526	69.0	20.6	.....	wnw	12	5.4
7:29 a. m....	69.0	20.6	....	wnw	12	5.4	2,983	909	67.4	19.7	.....	nw.	.....	.....
7:48 a. m....	70.0	21.1	....	w.	10	4.5	4,121	1,256	63.6	17.6	.....	nnw	.....	.....
8:02 a. m....	70.6	21.4	....	w.	10	4.5	5,497	1,676	60.0	15.6	.....	nnw	.....	.....
8:18 a. m....	71.5	21.9	....	w.	11	4.9	5,862	1,787	60.6	15.9	.....	nnw	.....	.....
8:31 a. m....	71.8	22.1	....	w.	12	5.4	5,874	1,790	59.6	15.3	.....	nnw	.....	.....
9:12 a. m....	73.0	22.8	....	nw.	12	5.4	1,725	526	73.0	22.8	.....	nw.	12	5.4
Aug. 19, 1907														
4:44 p. m....	74.2	23.4	....	se.	7	3.1	1,725	526	74.2	23.4	.....	se.	7	3.1
6:21 p. m....	71.0	21.7	....	se.	11	4.9	3,500	1,068	65.3	18.5	.....	ese.	.....	.....
6:45 p. m....	70.0	21.1	....	se.	12	5.4	4,356	1,328	63.7	17.6	.....	sse.	.....	.....
6:55 p. m....	69.3	20.7	....	se.	14	6.3	4,349	1,326	64.0	17.8	.....	sse.	.....	.....
7:03 p. m....	69.0	20.6	....	se.	15	6.7	3,736	1,149	68.4	20.2	.....	ese.	.....	.....
7:05 p. m....	69.0	20.6	....	se.	15	6.7	3,203	976	64.8	18.2	....	ese.	.....	.....
7:13 p. m....	68.9	20.5	....	se.	13	5.8	1,725	526	68.9	20.5	.....	se.	13	5.8
Aug. 20, 1907														
6:00 p. m....	74.7	23.7	....	s.	7	3.1	1,725	526	74.7	23.7	.....	s.	7	3.1
6:50 p. m....	73.6	23.1	....	s.	9	4.0	3,215	980	69.8	21.0	.....	sw.	.....	.....
7:20 p. m....	73.0	22.8	....	s.	10	4.5	1,725	526	73.0	22.8	.....	s.	10	4.5

August 17, 1907.—The flight was made with one kite having a lifting surface of 121 square feet (11.2 square meters).

The maximum amount of wire out was 7,750 feet (2,362 meters); wire out at maximum altitude was 7,750 feet (2,362 meters).

During the early part of the flight about 4/10 stratus clouds were observed. These gradually disappeared and upper clouds were observed, about 2/10 of the sky being covered at the close of the flight.

At the time of the flight the station was in the northern part of an area of high pressure, central over Georgia, while an area of low pressure was central over Canada, just north of the Great Lakes. Light rains had fallen in New England, the Middle Atlantic States, and the Ohio Valley during the previous twenty-four hours.

August 19, 1907.—The flight was made with three kites having a total lifting surface of 263 square feet (24.3 square meters).

The maximum amount of wire out was 7,000 feet (2,134 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

About 4/10 cirro-stratus clouds, with a tendency toward clearing, prevailed during the flight.

At the time of the flight the station was in the southern part of an area of high pressure, central over New England, while a second high was moving eastward over Montana. An area of low pressure, accompanied by thunderstorms, overlaid the upper Mississippi Valley, being central over Lake Superior. Excessive precipitation occurred in the Carolinas. Light frost occurred in northern Vermont and heavy frost in Montana.

August 20, 1907.—The flight was made with two kites having a total lifting surface of 195 square feet (18.0 square meters).

The maximum amount of wire out was 3,400 feet (1,036 meters); wire out at maximum altitude was 2,000 feet (610 meters).

About 5/10 strato-cumulus clouds from the west, gradually diminishing, were observed during the flight.

At the time of the flight the station was near the center of an area of high pressure that was passing off to sea over the Middle Atlantic States, while another high was central over South Dakota, with relatively low pressure between the two.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	°C.	%		Miles p. h.	Met's p. s.
Aug. 21, 1907														
7:10 a. m...	70.0	21.1	....	nw.	15	6.7	1,725	526	70.0	21.1	.....	nw.	15	6.7
7:27 a. m...	70.7	21.5	....	nw.	16	7.2	2,873	876	70.5	21.4	.....	wnw	.....	.....
9:32 a. m...	73.9	23.3	....	w.	13	5.8	3,376	1,029	73.1	22.8	.....	wnw	.....	.....
9:52 a. m...	75.7	24.3	....	w.	12	5.4	4,386	1,339	67.1	19.5	.....	nw.	.....	.....
10:10 a. m...	76.3	24.6	....	nw.	12	5.4	1,725	526	76.3	24.6	.....	nw.	12	5.4
Aug. 22, 1907														
7:35 a. m ..	59.0	15.0	....	n.	8	3.6	1,725	526	59.0	15.0	.....	n.	8	3.6
7:50 a. m...	59.0	15.0	....	n.	8	3.6	2,906	886	56.7	13.7	.....	nne.	.....	.....
8:10 a. m...	59.6	15.3	....	n.	8	3.6	3,561	1,086	56.3	13.5	.....	nne.	.....	.....
11:16 a. m...	63.2	17.3	....	n.	6	2.7	4,790	1,460	57.9	14.4	.....	nne.	.....	.....
11:42 a. m...	64.0	17.8	....	n.	6	2.7	1,725	526	64.0	17.8	.....	n.	6	2.7
Aug. 23, 1907														
8:18 a. m...	54.8	12.7	....	se.	18	8.0	1,725	526	54.8	12.7	.....	se.	18	8.0
8:54 a. m...	57.1	13.9	....	se.	18	8.0	4,007	1,221	61.8	16.6	.....	sse.	.....	.....
9:30 a. m...	57.0	13.9	....	se.	20	8.9	4,857	1,480	59.6	15.4	.....	s.	.....	.....
9:46 a. m...	57.7	14.3	....	se.	21	9.4	6,785	2,068	51.5	10.9	.....	s.	.....	.....
10:26 a. m...	58.2	14.6	....	se.	22	9.8	4,397	1,340	61.8	16.6	.....	sse.	.....	.....
10:42 a. m...	58.0	14.4	....	se.	22	9.8	3,769	1,149	56.8	13.8	.....	sse.	.....	.....
10:59 a. m...	58.0	14.4	....	se.	21	9.4	2,922	891	57.2	14.0	.....	sse.	.....	.....
11:12 a. m...	58.4	14.7	....	se.	21	9.4	1,725	526	58.4	14.7	.....	se.	21	9.4

August 21, 1907.—The flight was made with four kites having a total lifting surface of 278 square feet (25.7 square meters).

The maximum amount of wire out was 9,400 feet (2,865 meters); wire out at maximum altitude was 5,000 feet (1,524 meters).

A clear sky prevailed thruout the flight.

At the time of the flight an area of high pressure was central over southern Wisconsin, while the New England and Middle Atlantic States were covered by relatively low pressure.

August 22, 1907.—The flight was made with two kites having a total lifting surface of 189 square feet (17.5 square meters).

The maximum amount of wire out was 6,000 feet (1,829 meters); wire out at maximum altitude was 5,000 feet (1,524 meters).

The sky was totally obscured by stratus, alto-stratus, and strato-cumulus clouds during the flight.

At the time of the flight an extensive area of high pressure was centered over the lower Lake region; to the southeast of this center and in the vicinity of the station cloudy, showery weather prevailed, with lower temperatures. A barometric depression of considerable intensity was central northwest of the Dakotas.

August 23, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 8,000 feet (2,438 meters).

Rain began before the flight was started and ended at 9:42 a. m. The weather was foggy during the remainder of the flight.

At the time of the flight the pressure was high over the New England and Middle Atlantic States, accompanied by generally cloudy weather. An extensive area of low pressure was central over Minnesota. Excessive precipitation occurred in North Carolina during the previous twenty-four hours.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Aug. 24, 1907	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
7:24 a. m...	65.0	18.3	....	nw.	16 / 7.2	1,725	526	65.0	18.3	.....	nw.	16 / 7.2
7:35 a. m...	65.3	18.5	....	nw.	16 / 7.2	3,024	922	61.6	16.4	.....	nw.	..... / .....
7:47 a. m...	65.6	18.7	....	nw.	16 / 7.2	4,498	1,371	57.6	14.2	.....	nw.	..... / .....
8:03 a. m...	66.5	19.2	....	nw.	14 / 6.3	6,030	1,838	57.8	14.3	....	nw.	..... / .....
8:44 a. m...	68.7	20.4	....	nw.	14 / 6.3	6,737	2,053	54.9	12.7	.....	nw.	..... / .....
9:17 a. m...	70.7	21.5	....	nw.	15 / 6.7	6,919	2,109	55.0	12.8	.....	nw.	..... / .....
9:27 a. m...	70.6	21.4	....	nw.	15 / 6.7	5,492	1,674	59.2	15.1	.....	nw.	..... / .....
9:41 a. m...	70.9	21.6	....	nw.	15 / 6.7	5,002	1,525	56.5	13.6	.....	nw.	..... / .....
9:55 a. m...	71.1	21.7	....	nw.	15 / 6.7	4,183	1,275	60.8	16.0	.....	nw.	..... / .....
10:10 a. m...	72.2	22.3	....	nw.	14 / 6.3	1,725	526	72.2	22.3	.....	nw.	14 / 6.3
Aug. 26, 1907												
7:41 a. m...	60.3	15.7	....	w	16 / 7.2	1,725	526	60.3	15.7	.....	w.	16 / 7.2
7:47 a. m...	60.3	15.7	....	w.	16 / 7.2	2,983	909	60.8	16.0	.....	wnw	..... / .....
8:03 a. m...	60.8	16.0	....	w.	16 / 7.2	3,559	1,085	59.5	15.3	.....	nw.	..... / .....
8:24 a. m...	62.0	16.7	....	w.	15 / 6.7	5,757	1,755	50.0	10.0	.....	nw.	..... / .....
8:36 a. m...	63.5	17.5	....	w.	14 / 6.3	7,006	2,135	46.8	8.2	.....	nw.	..... / .....
8:47 a. m...	64.0	17.8	....	w.	14 / 6.3	7,101	2,164	48.0	8.9	.....	nw.	..... / .....
9:13 a. m...	64.2	17.9	....	w.	13 / 5.8	7,379	2,249	51.4	10.8	.....	nw.	..... / .....
9:16 a. m...	64.2	17.9	....	w.	13 / 5.8	7,810	2,380	50.0	10.0	.....	nw.	..... / .....
9:28 a. m...	64.8	18.2	....	w.	13 / 5.8	8,163	2,488	48.7	9.3	.....	nw.	..... / .....
9:40 a. m...	66.0	18.9	....	w.	12 / 5.4	5,686	1,733	48.7	9.3	.....	nw.	..... / .....
9:58 a. m...	66.8	19.3	....	w.	11 / 4.9	1,725	526	66.8	19.3	.....	w.	11 / 4.9

August 24, 1907.—The flight was made with one kite having a lifting surface of 74 square feet (6.8 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

When the flight was started strato-cumulus clouds covered the sky, but were rapidly diminishing toward the close. At an altitude of 5,194 feet (1,583 meters) strato-cumulus clouds were passing under the kite, and at an altitude of 4,183 feet (1,275 meters) the kite was close to the base of the lower clouds.

At the time of the flight the station was in the southeastern quadrant of an area of low pressure, accompanied by rain, central over Lake Superior. An area of high pressure was central over South Dakota and Nebraska, and another over the southern portion of the Gulf States. Heavy rain fell in the vicinity of the station during the previous twenty-four hours.

August 26, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 8,500 feet (2,591 meters).

A clear sky prevailed thruout the flight.

At the time of the flight an extensive area of high pressure covered the greater part of the United States east of the Mississippi River. An area of low pressure central over the lower St. Lawrence Valley was moving off toward the northeast, while another depression of considerable extent was central over the Dakotas.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
Aug. 27, 1907														
1:10 p.m...	67.5	19.7	69	s.	8	3.6	1,725	526	67.5	19.7	69	s.	8	3.6
3:58 p.m...	68.3	20.2	67	s.	9	4.0	10,509	3,203	39.6	4.2	....	wnw	.....	.....
4:26 p.m...	68.0	20.0	66	s.	10	4.5	8,835	2,693	43.2	6.2	.....	wnw	.....	.....
4:46 p.m...	68.0	20.0	67	s.	8	3.6	6,555	1,998	53.1	11.7	.....	w.	.....	.....
5:06 p.m...	67.8	19.9	66	s.	8	3.6	5,728	1,746	56.3	13.5	.....	w.	.....	.....
5:22 p.m...	69.0	20.6	65	s.	9	4.0	4,156	1,267	59.8	15.4	.....	wsw.	.....	.....
5:47 p.m...	68.6	20.3	66	s.	6	2.7	1,725	526	68.6	20.3	66	s.	6	2.7
Aug. 28, 1907														
6:51 a.m...	61.9	16.6	97	nw.	15	6.7	1,725	526	61.9	16.6	97	nw.	15	6.7
7:08 a.m...	62.0	16.7	100	nw.	13	5.8	2,945	898	64.4	18.0	.....	wnw.	.....	.....
7:20 a.m...	62.3	16.8	99	nw.	12	5.4	3,983	1,214	61.0	16.1	.....	wnw.	.....	.....
7:43 a.m...	62.7	17.1	98	nw.	10	4.5	4,987	1,520	59.4	15.2	.....	wnw.	.....	.....
7:58 a.m...	63.5	17.5	97	nw.	9	4.0	6,132	1,869	57.6	14.2	.....	wnw.	.....	.....
9:14 a.m...	65.5	18.6	87	n.	13	5.8	1,725	526	65.5	18.6	87	n.	13	5.8

August 27, 1907.—The flight was made with three kites having a total lifting surface of 210 square feet (19.4 square meters).

The maximum amount of wire out was 12,000 feet (3,658 meters); wire out at maximum altitude was 11,750 feet (3,581 meters).

Cloudy weather with occasional sprinkles prevailed during the flight. At an altitude of 10,500 feet (3,200 meters) above sea level the uppermost kite was in the base of strato-cumulus clouds.

At the time of the flight the station was in the northeastern part of a long ridge of high pressure covering the Gulf and Middle Atlantic States. A barometric depression of considerable extent was central over northern Illinois and was accompanied by heavy precipitation.

August 28, 1907.—The flight was made with two kites having a total lifting surface of 136 square feet (12.6 square meters).

The maximum amount of wire out was 7,500 feet (2,286 meters); wire out at maximum altitude was 7,500 feet (2,286 meters).

During the flight fog was in the valleys on each side of the mountain and light fog was blowing over the station from the northwest. From 2/10 to 5/10 strato-cumulus clouds were observed at intervals. At an altitude of 6,132 feet (1,869 meters) the uppermost kite was above strato-cumulus clouds.

At the time of the flight the whole eastern part of the country was dominated by relatively high pressure, excepting the lower St. Lawrence Valley, where a low-pressure area was moving off to the northeast. Light rains had fallen during the previous twenty-four hours in southern New England and thence westward to the Ohio Valley.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Aug. 29, 1907	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
4:26 p. m...	70.0	21.1	50	nw.	8 / 3.6	1,725	526	70.0	21.1	50	nw.	8 / 3.6
4:45 p. m...	70.0	21.1	....	nw.	8 / 3.6	2,383	726	65.4	18.6	.....	nw.	..... / .....
7:00 p. m...	68.2	20.1	....	n.	4 / 1.8	1,725	526	68.2	20.1	.....	n.	4 / 1.8
Aug. 30, 1907												
10:49 a. m...	67.5	19.7	....	w.	12 / 5.4	1,725	526	67.5	19.7	.....	w.	12 / 5.4
11:54 a. m...	66.5	19.2	....	nw.	10 / 4.5	3,729	1,137	61.3	16.3	.....	nw.	..... / .....
12:23 p. m. .	68.0	20.0	....	nw.	12 / 5.4	1,725	526	68.0	20.0	.....	nw.	12 / 5.4
Aug. 31, 1907												
7:31 a. m...	62.8	17.1	....	nw.	15 / 6.7	1,725	526	62.8	17.1	.....	nw.	15 / 6.7
7:38 a. m...	64.0	17.8	....	nw.	16 / 7.2	6,602	2,012	50.4	10.2	.....	nnw.	..... / .....
8:28 a. m...	64.8	18.2	....	nw.	16 / 7.2	7,435	2,266	46.0	7.8	.....	nnw.	..... / .....
9:07 a. m...	67.0	19.4	....	nw.	16 / 7.1	7,700	2,347	53.1	11.7	.....	nnw.	..... / .....
9:43 a. m...	68.0	20.0	....	nw.	16 / 7.2	6,522	1,988	51.1	10.6	.....	nnw.	..... / .....
9:59 a. m...	68.0	20.0	....	nw.	16 / 7.2	5,437	1,657	55.6	13.1	.....	nnw.	..... / .....
10:16 a. m...	68.8	20.4	....	nw.	16 / 7.2	4,517	1,377	58.1	14.5	.....	n.	..... / .....
10:32 a. m...	69.5	20.8	....	nw.	16 / 7.2	3,421	1,043	61.4	16.3	.....	nnw.	..... / .....
10:47 a. m...	69.5	20.8	....	nw.	16 / 7.2	2,591	790	64.6	18.1	.....	nnw.	..... / .....
11:00 a. m...	69.6	20.9	....	nw.	16 / 7.2	1,725	526	69.6	20.9	.....	nw.	16 / 7.2

August 29, 1907.—The flight was made with one kite having a lifting surface of 121 square feet (11.2 square meters).

The maximum amount of wire out was 1,500 feet (457 meters); wire out at maximum altitude was 1,500 feet (457 meters).

About 2/10 alto-stratus clouds, moving from the northwest, were observed during the flight.

At the time of the flight the weather in the vicinity of the station was influenced by an area of high pressure central over the lower Lake region. A barometric depression of considerable intensity was central over the lower St. Lawrence Valley, and a greater depression was moving into the United States from the northwest.

August 30, 1907.—The flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 4,000 feet (1,372 meters); wire out at maximum altitude was 3,750 feet (1,143 meters).

Cloudy weather, accompanied by light showers, prevailed on the morning the flight was made.

At the time of the flight the station was near the center of an area of high pressure covering the Middle Atlantic States. Relatively low pressure covered the western half of the United States, except the extreme northwest.

August 31, 1907.—The flight was made with one kite having a lifting surface of 74 square feet (6.8 square meters).

The maximum amount of wire out was 12,000 feet (3,658 meters); wire out at maximum altitude was 12,000 feet (3,658 meters).

At the beginning of the flight fog was in the valleys on each side of the mountain and a few cirro-stratus clouds, moving from the northwest, were observed. Shortly after, cumulus clouds began forming, and at 9:30 a. m. 5/10 from the northwest were observed, but they gradually diminished toward end of flight. The kite was above the clouds at an altitude of 4,517 feet (1,377 meters) above sea level.

At the time of the flight the eastern part of the United States was dominated by an area of high pressure central over the upper Great Lakes. An area of low pressure was central north of the Dakotas.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Feet.	Meters.	° F.	° C.	%		Miles p. h.
Sept. 2, 1907.												
7:29 a. m...	65.8	18.8	....	w.	14	1,725	526	65.8	18.8	.....	w.	14
8:00 a. m...	66.5	19.2	....	w.	18	2,953	900	67.2	19.6	.....	w.	.....
8:15 a. m...	67.0	19.4	....	w.	21	4,021	1,226	68.1	20.1	.....	nw.	.....
8:30 a. m...	66.6	19.2	....	w.	22	5,164	1,574	65.6	18.7	.....	wnw	.....
8:55 a. m...	70.5	21.4	....	w.	19	6,553	1,997	60.7	15.9	.....	wnw	.....
9:17 a. m...	71.0	21.7	....	w.	18	6,593	2,010	59.4	15.2	.....	wnw	.....
9:42 a. m...	69.8	21.0	....	w.	19	1,725	526	69.8	21.0	.....	w.	19
Sept. 3, 1907.												
7:22 a. m...	70.4	21.3	....	w.	11	1,725	526	70.4	21.3	.....	w.	11
7:34 a. m...	70.5	21.4	....	w.	12	2,688	819	68.8	20.4	.....	wsw.	.....
8:00 a. m...	70.0	21.1	....	w.	12	3,367	1,026	63.9	17.7	.....	wsw.	.....
8:36 a. m..	69.8	21.0	....	w.	11	4,541	1,384	61.4	16.3	.....	w.	.....
9:54 a. m...	71.8	20.1	....	w.	7	1,725	526	71.8	20.1	.....	w.	7
Sept. 4, 1907.												
6:30 p. m...	66.0	18.9	....	se.	11	1,725	526	66.0	18.9	.....	se.	11
6:43 p. m...	65.3	18.5	....	se.	12	4,990	1,521	59.4	15.2	.....	ssw.	.....
7:01 p. m...	64.9	18.3	....	se.	10	4,613	1,306	64.6	18.1	.....	s.	.....
7:05 p. m...	64.8	18.2	....	se.	10	3,846	1,172	63.0	17.2	.....	s.	.....
7:23 p. m...	65.0	18.3	....	se.	13	1,725	526	65.0	18.3	.....	se.	13

Date and hour.	Wind.	
	Dir.	Velocity.
		Met's p. s.
Sept. 2, 1907.		
7:29 a. m...	w.	6.3
8:00 a. m...	w.	.....
8:15 a. m...	nw.	.....
8:30 a. m...	wnw	.....
8:55 a. m...	wnw	.....
9:17 a. m...	wnw	.....
9:42 a. m...	w.	8.5
Sept. 3, 1907.		
7:22 a. m...	w.	4.9
7:34 a. m...	wsw.	.....
8:00 a. m...	wsw.	.....
8:36 a. m..	w.	.....
9:54 a. m...	w.	3.1
Sept. 4, 1907.		
6:30 p. m...	se.	4.9
6:43 p. m...	ssw.	.....
7:01 p. m...	s.	.....
7:05 p. m...	s.	.....
7:23 p. m...	se.	5.8

September 2, 1907.—The flight was made with one kite having a lifting surface of 74 square feet (6.8 square meters).

The maximum amount of wire out was 7,500 feet (2,286 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

At the time of the flight about 9/10 clouds, with occasional sprinkles, were observed, but the tendency was toward clearing at the end of the flight.

At the beginning of the flight the station was in the southern part of an area of low pressure, accompanied by showers and thunderstorms, central over Lake Ontario. The pressure was moderately high over the North Carolina coast.

September 3, 1907.—The flight was made with two kites having a total lifting surface of 142 square feet (13.1 square meters).

The maximum amount of wire out was 5,000 feet (1,524 meters); wire out at maximum altitude was 5,000 feet (1,524 meters).

About 2/10 alto-cumulus, 2/10 alto-stratus, and 3/10 strato-cumulus, from the west, were observed during the flight.

At the time of the flight the weather at the station was influenced by an area of low pressure, accompanied by showers, central over Pennsylvania. Heavy precipitation had occurred in New England and Pennsylvania during the previous twenty-four hours. Areas of high pressure were central over North Dakota and the lower St. Lawrence Valley.

September 4, 1907.—The flight was made with one kite having a lifting surface of 121 square feet (11.2 square meters).

The maximum amount of wire out was 5,000 feet (1,524 meters); wire out at maximum altitude was 5,000 feet (1,524 meters).

The sky was covered with low hanging clouds, mostly nimbus in character, during the flight.

During the time of the flight, high pressure continued over the St. Lawrence Valley. The weather at the station was dominated by an area of low pressure over the Middle and South Atlantic states. Several thunderstorms occurred during the day, accompanied by heavy rain.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.						At different heights above sea.							
	Air temperature.		Rel. hum.	Wind.			Height.		Air temperature.		Rel. hum.	Wind.		
				Dir.	Velocity.							Dir.	Velocity.	
Sept. 5, 1907.	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
4:50 p. m.	75.2	24.0	....	nw.	9	4.0	1,725	526	75.2	24.0	.....	nw.	9	4.0
5:05 p. m.	74.3	23.5	....	nw.	8	3.6	3,559	1,085	69.9	21.1	.....	wnw	.....	.....
5:31 p. m.	72.8	22.6	59	nw.	6	2.7	5,859	1,786	55.9	13.3	.....	w.	.....	.....
6:23 p. m.	70.4	21.3	....	nw.	10	4.5	8,398	2,560	40.7	4.9	.....	w.	.....	.....
6:44 p. m.	69.3	20.7	59	nw.	11	4.9	9,262	2,823	36.1	2.3	.....	w.	.....	.....
7:05 p. m.	68.8	20.4	....	nw.	12	5.1	9,775	2,980	32.6	0.4	.....	w.	.....	.....
7:29 p. m.	68.0	20.0	....	nw.	14	6.3	11,085	3,379	28.7	−1.8	.....	w.	.....	.....
7:46 p. m.	67.8	19.9	....	nw.	15	6.7	12,015	3,693	28.2	−2.1	.....	w.	.....	.....
8:00 p. m.	67.5	19.7	....	nw.	16	7.2	10,234	3,119	27.4	−2.5	.....	w.	.....	.....
8:25 p. m.	67.0	19.4	....	nw.	18	8.0	6,624	2,019	48.1	9.0	.....	w.	.....	.....
9:10 p. m.	66.6	19.2	....	nw.	20	8.9	1,725	526	66.6	19.2	.....	nw.	20	8.9
Sept. 6, 1907.														
7:30 a. m.	59.5	15.3	70	nw.	26	11.6	1,725	526	59.5	15.3	70	nw.	26	11.6
7:42 a. m.	60.3	15.7	71	nw.	25	11.2	3,967	1,209	53.6	12.0	.....	nw.	.....	.....
7:54 a. m.	60.5	15.8	71	nw.	24	10.7	5,059	1,542	49.5	9.7	.....	nw.	.....	.....
8:05 a. m.	60.8	16.0	70	nw.	21	9.4	5,608	1,709	46.9	8.3	.....	nw.	.....	.....
9:27 a. m.	64.0	17.8	60	nw.	28	12.5	6,939	2,115	51.1	10.6	.....	nw.	.....	.....
10:00 a. m.	64.5	18.1	58	nw.	31	13.9	8,044	2,452	45.1	7.7	.....	nw.	.....	.....
10:36 a. m.	66.0	18.9	58	nw.	24	10.7	9,302	2,836	41.9	5.5	.....	wnw	.....	.....
11:09 a. m.	67.0	19.4	54	nw.	23	10.3	11,059	3,371	34.0	1.1	.....	sw.	.....	.....
12:12 p. m.	67.6	19.8	54	nw.	18	8.0	12,955	3,949	29.7	−1.3	.....	w.	.....	.....

September 5, 1907.—The flight was made with five kites having a total lifting surface of 316 square feet (29.2 square meters).

The maximum amount of wire out was 18,000 feet (5,486 meters); wire out at maximum altitude was 17,000 feet (5,182 meters).

About 3/10 alto-cumulus clouds were visible during the flight. A few strato-cumulus clouds were visible during the early part of the flight, but soon disappeared.

During the flight an area of comparatively low pressure was central over the lower Lakes and extended over the station. An area of high pressure was central over western Tennessee, northern Mississippi, and Alabama.

September 6, 1907.—The flight was made with four kites having a total lifting surface of 278 square feet (25.7 square meters).

The maximum amount of wire out was 18,250 feet (5,563 meters); wire out at maximum altitude was 18,200 feet (5,547 meters).

A few lower clouds were observed at the beginning of the flight; these increased to about 2/10.

At the time of the flight an area of low pressure was located over the St. Lawrence Valley; the high pressure of the preceding day had moved northward and was central over the lower Ohio Valley.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Sept. 7, 1907.	° F.	° C.	%		*Miles p. h.*	*Met's p. s.*	*Feet.*	*Meters.*	° F.	° C.	%		*Miles p. h.*	*Met's p. s.*
7:15 a. m....	56.3	13.5	83	nw.	15	6.7	1,725	526	56.3	13.5	83	nw.	15	6.7
7:45 a. m....	58.0	14.4	81	nw.	14	6.3	2,818	859	57.4	14.1	.....	nw.	.....	.....
9:09 a. m....	61.4	16.3	....	nw.	12	5.4	3,116	950	60.6	15.9	.....	nw.	.....	.....
9:44 a. m....	62.0	16.7	75	nw.	10	4.5	1,725	526	62.0	16.7	75	nw.	10	4.5
Sept. 9, 1907.														
9:45 a. m....	66.8	19.3	92	se.	12	5.4	1,725	526	66.8	19.3	92	se.	12	5.4
10:02 a. m....	66.5	19.2	92	se.	12	5.4	2,781	848	65.3	18.5	.....	sse.	.....	.....
11:52 a. m....	68.2	20.1	88	se.	15	6.7	3,895	1,187	66.6	19.2	....	ssw.	.....	.....
1:00 p. m....	68.0	20.0	90	se.	18	8.0	4,437	1,352	63.4	17.4	.....	sw.	.....	.....
2:30 p. m....	67.3	19.6	91	se.	14	6.3	1,725	526	67.3	19.6	91	se.	14	6.3
Sept. 10, 1907														
7:32 a. m....	66.3	19.1	100	se.	13	5.8	1,725	526	66.3	19.1	100	se.	13	5.8
7:53 a. m....	66.4	19.1	100	se.	14	6.3	2,415	763	54.8	18.2	.....	sse.	.....	.....
8:40 a. m....	66.3	19.1	100	se.	17	7.6	3,808	1,161	65.7	18.7	.....	sw.	.....	.....
9:00 a. m....	66.5	19.2	100	se.	17	7.6	5,000	1,524	66.4	19.1	.....	wsw.	.....	.....
9:27 a. m....	66.4	19.1	100	se.	12	5.4	6,794	2,071	58.6	14.8	.....	wsw.	.....	.....
9:42 a. m....	66.5	19.2	100	se.	14	6.3	3,605	1,096	71.1	21.7	.....	sw.	.....	.....
9:51 a. m....	66.6	19.2	100	se.	14	6.3	1,725	526	66.6	19.2	100	se.	14	6.3

September 7, 1907.—The flight was made with two kites having a total lifting surface of 142 square feet (13.1 square meters).

The maximum amount of wire out was 2,000 feet (610 meters); wire out at maximum altitude was 2,000 feet (610 meters).

About 3/10 cirrus and alto-stratus clouds were visible during the flight.

At the time of the flight the station was near the center of an area of high pressure extending over portions of Virginia, West Virginia, and Tennessee. An area of low pressure occupied the middle and upper Mississippi valleys, while another was central over the lower St. Lawrence Valley.

September 9, 1907.—The flight was made with four kites having a total lifting surface of 248 square feet (22.9 square meters).

The maximum amount of wire out was 8,000 feet (2,438 meters); wire out at maximum altitude was 6,000 feet (1,829 meters).

The sky was covered with strato-cumulus clouds during the entire flight.

At the time of the flight the station was surrounded by an area of comparatively low pressure, central over Lake Michigan. An area of high pressure had overspread the upper Missouri Valley and the Dakotas, and another was central over the lower St. Lawrence Valley.

September 10, 1907.—The flight was made with two kites having a total lifting surface of 112 square feet (10.3 square meters).

The maximum amount of wire out was 7,000 feet (2,134 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

The flight was started in dense fog and occasional misting occurred during the flight. The upper limit of the fog was at an altitude of about 3,600 feet (1,097 meters) above sea level.

At the time of the flight the station was to the east of an area of low pressure central over southern Indiana. Heavy precipitation accompanied this disturbance, and light showers had previously occurred over the Middle Atlantic States. An area of high pressure was central over Maine, while another prevailed over northwestern Texas.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Sept. 11, 1907	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
7:34 a.m....	66.2	19.0	100	s.	12 / 5.4	1,725	526	66.2	19.0	100	s.	12 / 5.4
7:43 a.m....	62.2	19.0	100	s.	13 / 5.8	2,863	873	64.8	18.2	....	sw.	..... / .....
7:56 a.m....	66.2	19.0	....	s.	12 / 5.4	4,041	1,232	61.2	16.2	.....	sw.	..... / .....
8:09 a.m....	66.3	19.1	....	s.	12 / 5.4	5,173	1,577	55.4	13.0	.....	sw.	..... / .....
8:50 a.m....	67.5	19.7	97	s.	16 / 7.2	7,068	2,154	54.9	12.7	.....	wsw.	..... / .....
9:45 a.m....	68.0	20.0	....	se.	11 / 4.9	1,725	526	68.0	20.0	.....	se.	11 / 4.9
Sept. 12, 1907												
7:32 a.m....	58.1	14.5	....	w.	24 / 10.7	1,725	526	58.1	14.5	.....	w.	24 / 10.7
7:41 a.m....	58.5	14.7	64	w.	21 / 9.4	4,152	1,266	53.0	11.7	.....	nw.	..... / .....
7:55 a.m....	59.0	15.0	65	w.	22 / 9.8	5,425	1,654	53.0	11.7	.....	nw.	..... / .....
8:55 a.m....	61.8	16.6	62	w.	19 / 8.5	6,547	1,996	46.3	7.9	.....	nw.	..... / .....
9:17 a.m....	62.7	17.1	....	w.	15 / 6.7	3,912	1,192	51.7	10.9	.....	nw.	..... / .....
9:24 a.m....	63.0	17.2	....	w.	13 / 5.8	3,024	922	54.8	11.0	.....	wnw	..... / .....
9:40 a.m....	64.0	17.8	....	w.	17 / 7.6	1,725	526	64.0	17.8	....	w.	17 / 7.6

September 11, 1907.—The flight was made with one kite having a lifting surface of 74 square feet (6.8 square meters).

The maximum amount of wire out was 7,500 feet (2,286 meters); wire out at maximum altitude was 7,500 feet (2,286 meters).

The flight was started in a dense fog, gradually becoming light and finally lifting at 8:50 a. m., at which time the sky was totally obscured by clouds. The kite was just above strato-cumulus clouds at an altitude of 7,068 feet (2,154 meters) above sea level. Rain began at 9:25 a. m.

At the time of the flight an extensive area of low pressure was central over the upper Lake region, while the west Gulf States were covered by relatively high pressure. Heavy precipitation had previously occurred in Pennsylvania, the Gulf States, and the upper Lake region.

September 12, 1907.—The flight was made with one kite having a lifting surface of 74 square feet (6.8 square meters).

The maximum amount of wire out was 7,500 feet (2,286 meters); wire out at maximum altitude was 7,500 feet (2,286 meters).

A clear sky prevailed thruout the flight.

At the time of the flight the station was in the northeastern portion of an extensive area of high pressure covering the entire southeastern part of the United States. A barometric depression of considerable intensity was moving off over the lower St. Lawrence Valley. Heavy precipitation occurred along the New England and middle Atlantic coasts.

CAPTIVE BALLOON ASCENSIONS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
Sept. 13, 1907														
5:20 p. m ...	68.8	20.4	....	e.	6	2.7	1,725	526	68.8	20.4	.....	e.	6	2.7
5:40 p.m....	66.5	19.2	64	e.	7	3.1	5,476	1,669	59.4	15.2	.....	s.	.....	.....
5:53 p.m....	66.5	19.2	....	e.	7	3.1	4,248	1,295	61.0	16.1	.....	ssw.	.....	.....
6:07 p.m....	66.4	19.1	....	e.	8	3.6	3,712	1,132	62.8	17.1	.....	ssw.	.....	.....
6:24 p.m....	65.5	18.6	66	e.	8	3.6	1,725	526	65.5	18.6	66	e.	8	3.6
Sept. 14, 1907														
9:12 a. m...	69.3	20.7	....	se.	7	3.1	1,725	526	69.3	20.7	.....	se.	7	3.1
9:23 a. m...	69.3	20.7	....	se.	8	3.6	2,616	798	63.6	17.5	.....	wsw.	.....	.....
10:00 a. m...	69.6	20.9	....	se.	9	4.0	1,725	526	69.6	20.9	.....	se.	9	4.0

RESULTS OF KITE FLIGHT.

Sept. 14, 1907														
12:04 p.m...	71.8	22.1	....	se.	13	5.8	1,725	526	71.8	22.1	.....	se.	13	5.8
12:58 p.m...	72.0	22.2	....	s.	16	7.2	3,505	1,068	62.6	17.0	.....	se.	.....	.....
1:32 p.m...	72.4	22.4	....	se.	14	6.3	4,979	1,518	56.3	13.5	.....	se.	.....	.....
1:58 p.m...	72.0	22.2	....	se.	15	6.7	5,336	1,626	60.4	15.1	.....	sse.	.....	.....
2:08 p.m...	72.0	22.2	....	se.	17	7.6	3,683	1,123	61.9	16.6	.....	sse.	.....	.....
2:40 p.m...	72.0	22.2	....	se.	14	6.3	1,725	526	72.0	22.2	.....	se.	14	6.3

September 13, 1907.—The flight was made with two captive balloons. Winds were very light, especially for first 2,000 feet (610 meters), the balloons drifting away but slightly.

The maximum amount of wire used was 6,000 feet (1,829 meters).

A clear sky prevailed thruout the flight.

At the time of the flight the station was near the center of an area of high pressure covering the entire eastern part of the United States. A trough of low pressure extended from Minnesota to southern California. Heavy rains had occurred in the Gulf States during the previous twenty-four hours.

September 14, 1907.—The first flight was made with two captive balloons and only 2,000 feet (610 meters) of wire were used.

The second flight was made with three kites having a total lifting surface of 180 square feet (16.6 square meters).

The maximum amount of wire out was 6,600 feet (2,012 meters); wire out at maximum altitude was 6,000 feet (1,829 meters).

A few alto-cumulus clouds, moving from the southeast, were observed during the flight.

At the time of the flights the entire portion of the United States, east of the Mississippi Valley, was covered by high pressure, the maximum being near the station. The high was accompanied by clear, cool weather. Low pressure was moving in over Montana from the northwest.

CAPTIVE BALLOON ASCENSION.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
Sept. 16, 1907														
3:02 p. m...	77.6	25.3	60	s.	7	3.1	1,725	526	77.6	25.3	60	s.	7	3.1
3:15 p. m...	78.8	25.6	59	s.	6	2.7	3,807	1,160	68.7	20.4	....	sw.	.....	.....
3:38 p. m...	77.7	25.4	58	s.	6	2.7	1,725	526	77.7	25.4	58	s.	6	2.7

RESULTS OF KITE FLIGHTS.

Sept. 17, 1907														
7:21 a. m...	69.2	20.7	77	w.	17	7.6	1,725	526	69.2	20.7	77	w.	17	7.6
7:30 a. m...	69.5	20.8	77	w.	16	7.2	2,938	896	67.3	19.6	.....	nw.	.....	.....
8:21 a. m...	71.3	21.8	72	w.	25	11.2	3,751	1,143	71.7	21.7	....	wnw	.....	.....
9:06 a. m...	72.0	22.2	73	w.	22	9.8	4,524	1,379	69.6	20.9	....	wnw	.....	.....
10:09 a. m...	73.0	22.8	72	nw.	22	9.8	4,708	1,435	68.7	20.4	.....	wnw	.....	.....
11:15 a. m...	74.0	23.3	74	nw.	20	8.9	5,529	1,685	63.7	17.6	.....	wnw	.....	.....
11:22 a. m...	74.0	23.3	75	nw.	20	8.9	4,775	1,455	65.3	18.5	.....	nw.	.....	.....
11:27 a. m...	74.0	23.3	76	nw.	15	6.7	3,967	1,209	65.5	18.6	.....	nw.	.....	.....
11:36 a. m...	74.5	23.6	74	nw.	16	7.2	1,725	526	74.5	23.6	74	nw.	16	7.2
Sept. 18, 1907														
4:03 p. m...	71.0	21.7	88	e.	9	4.0	1,725	526	71.0	21.7	88	e.	9	4.0
4:12 p. m...	70.3	21.3	....	e.	10	4.5	2,163	659	68.4	20.2	.....	ese.	.....	.....
4:32 p. m...	69.0	20.6	....	e.	11	4.9	2,846	868	65.7	18.7	.....	ese.	.....	.....
5:17 p. m...	67.0	19.4	....	e.	11	4.9	3,476	1,060	63.3	17.4	.....	s.	.....	.....
5:30 p. m...	67.0	19.4	98	e.	11	4.9	1,725	526	67.0	19.4	98	e.	11	4.9

September 16, 1907.—The flight was made with two captive balloons and at the maximum altitude reached 4,000 feet (1,219 meters) of wire were out.

A few cirro-stratus clouds, moving from the southwest, were observed during the flight.

At the time of the flight the station was near the center of an extensive area of high pressure covering the Atlantic and Gulf coast States. A slight barometric depression, lowest near Lake Superior, prevailed over the middle West. Heavy rain had fallen in the Gulf coast districts.

September 17, 1907.—The flight was made with three kites having a total lifting surface of 180 square feet (16.6 square meters).

The maximum amount of wire out was 8,500 feet (2,591 meters); wire out at maximum altitude was 6,000 feet (1,829 meters).

From 4/10 to 9/10 clouds, from the west and west-northwest, were visible thruout the flight. The clouds were principally strato-cumulus and alto-cumulus.

At the time of the flight the station was near the center of a ridge of high pressure extending from the upper Great Lakes to Florida. An area of low pressure was moving off over Nova Scotia. Light showers had previously occurred in the northern tier of States, the Middle Atlantic States, and Gulf States.

September 18, 1907.—The flight was made with three kites having a total lifting surface of 180 square feet (16.6 square meters).

The maximum amount of wire out was 4,500 feet (1,372 meters); wire out at maximum altitude was 4,000 feet (1,219 meters).

From 7/10 to 10/10 clouds prevailed during the flight. The uppermost kite entered thin clouds at an altitude of 2,163 feet (659 meters) above sea level. Dense fog was forming at close of flight.

At the time of the flight the weather at the station was influenced by an area of high pressure central over the New England States. An area of relatively low pressure was central over South Dakota. Showers and thunderstorms had previously occurred over the Lake region and a greater part of the Middle Atlantic States.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
Sept. 19, 1907														
3:51 p. m....	63.0	17.2	100	ese	11	4.9	1,725	526	63.0	17.2	100	ese	11	4.9
3:57 p. m....	63.0	17.2	100	se.	12	5.4	2,174	663	62.2	16.8	.....	ese	... ..	.....
5:13 p. m....	62.9	17.2	100	se.	11	4.9	2,632	802	68.0	20.0	.....	s.	.....	.....
5:17 p. m....	62.9	17.2	100	se.	12	5.4	1,724	526	62.9	17.2	100	se.	12	5.4
Sept. 20, 1907														
4:16 p. m....	73.8	23.2	86	sse	13	5.8	1,725	526	73.8	23.2	86	sse	13	5.8
4:28 p. m....	73.6	23.1	....	s.	12	5.4	2,406	733	75.2	24.0	.....	s.	.....	.....
5:19 p. m....	73.5	23.1	....	s.	11	4.9	4,523	1,379	67.6	19.8	.....	wsw	.....	.....
5:26 p. m...	73.2	22.9	....	s.	11	4.9	3,954	1,205	69.8	21.0	.....	wsw	.....	.....
5:36 p. m....	73.0	22.8	....	s.	12	5.4	2,793	851	73.0	22.8	.....	ssw	.....	.....
6:40 p. m....	73.7	23.2	....	s.	10	4.5	1,725	526	73.7	23.2	.....	s.	10	4.5
Sept. 21, 1907														
7:40 a. m....	71.8	22.1	78	w.	13	5.8	1,725	526	71.8	22.1	78	w.	13	5.8
7:48 a. m....	72.0	22.2	....	w.	13	5.8	2,567	785	72.3	22.4	.....	w.	.....	.....
7:53 a. m....	72.1	22.3	....	w.	12	5.4	3,693	1,126	68.9	20.5	.....	nw.	.....	.....
8:02 a. m....	72.5	22.5	....	w.	14	6.3	4,040	1,231	68.5	20.3	.....	nw.	.....	.....
8:40 a. m....	74.0	23.3	....	w.	16	7.2	4,076	1,242	69.8	21.0	.....	nw.	.....	.....
9:11 a. m....	75.1	23.9	70	w.	16	7.2	3,647	1,112	71.4	21.9	.....	wnw	.....	.....
9:40 a. m....	75.7	24.3	69	w.	16	7.2	1,725	526	75.7	24.3	69	w.	16	7.2

September 19, 1907.—The flight was made with three kites having a total lifting surface of 227 square feet (21.0 square meters).

The maximum amount of wire out was 5,000 feet (1,524 meters); wire out at maximum altitude was 1,600 feet (488 meters).

Dense fog prevailed thruout the flight and the upper limit of fog layer was probably about 2,400 feet (732 meters).

At the time of the flight unsettled, showery weather prevailed generally over the entire northern portion of the country from New England and the Middle Atlantic States to the Dakotas. An area of high pressure was central over New England, and an extensive low was centered over Nebraska. Heavy precipitation had previously occurred over the Atlantic coast States.

September 20, 1907.—The flight was made with three kites having a total lifting surface of 180 square feet (16.6 square meters).

The maximum amount of wire out was 5,000 feet (1,524 meters); wire out at maximum altitude was 4,000 feet (1,219 meters).

A clear sky prevailed thruout the flight.

At the time of the flight a storm of considerable intensity was central over Lake Superior. Unsettled weather with showers and thunderstorms was general over the districts influenced by this depression, and heavy precipitation occurred near its center. Moderately high pressure prevailed along the Atlantic coast.

September 21, 1907.—The flight was made with three kites having a total lifting surface of 180 square feet (16.6 square meters).

The maximum amount of wire out was 8,500 feet (2,591 meters); wire out at maximum altitude was 8,500 feet (2,591 meters).

A clear sky prevailed thruout the flight.

At the time of the flight a tropical disturbance was central over the mouth of the Mississippi River, and Lake Superior was the center of another low pressure area, while moderately high pressure prevailed between the two. Warmer weather with occasional showers had occurred in New England and the Middle Atlantic States. The entire northwestern section of the United States was dominated by a high of moderate pressure. A depression of considerable intensity was moving off over the lower St. Lawrence Valley.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Sept. 23, 1907	° F.	° C.	%		Miles p. h. / Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h. / Met's p. s.
5:54 p. m...	63.8	17.7	....	ssw.	8 / 3.6	1,725	526	63.3	17.7	.....	ssw.	8 / 3.6
5:57 p. m...	63.6	17.6	....	se.	10 / 4.5	2,652	808	65.8	18.8	.....	wsw.	..... / .....
6:01 p. m...	63.6	17.6	....	se.	10 / 4.5	3,061	933	63.5	17.5	.....	w.	..... / .....
6:11 p. m...	63.2	17.3	....	s.	10 / 4.5	4,212	1,284	59.0	15.0	.....	w.	..... / .....
6:22 p. m...	63.3	17.4	....	s.	10 / 4.5	5,595	1,705	57.0	13.9	.....	wnw	..... / .....
6:36 p. m...	63.7	17.6	....	s.	11 / 4.9	6,827	2,081	54.3	12.4	.....	wnw	..... / .....
7:03 p. m...	65.7	18.7	....	sw.	11 / 4.9	1,725	526	65.7	18.7	.....	sw.	11 / 4.9
Sept. 24, 1907												
7:28 a. m...	68.0	20.0	56	ssw.	16 / 7.2	1,725	526	68.0	20.0	56	ssw.	16 / 7.2
7:32 a. m...	68.2	20.1	57	sw.	16 / 7.2	3,035	925	65.3	18.5	.....	w.	..... / .....
7:45 a. m...	67.5	19.7	58	sw.	12 / 5.4	4,209	1,283	59.5	15.3	.....	wnw	..... / .....
7:57 a. m ..	66.8	19.3	61	s.	10 / 4.5	5,551	1,692	57.6	14.2	.....	wnw	..... / .....
8:33 a. m...	68.0	20.0	61	sw.	12 / 5.4	6,723	2,049	54.1	12.3	.....	wnw	..... / .....
9:31 a. m...	70.0	21.1	61	sw.	14 / 6.3	8,040	2,451	52.3	11.3	.....	w.	..... / .....
10:02 a. m...	72.5	22.5	53	sw.	16 / 7.2	9,539	2,908	48.7	9.3	.....	w.	..... / .....
11:33 a. m...	75.2	24.0	56	sw.	13 / 5.8	11,800	3,597	34.3	1.3	.....	w.	..... / .....
12:14 p. m...	75.7	24.3	54	sw.	12 / 5.4	13,541	4,127	25.9	—3.4	.....	w.	..... / .....
12:40 p. m...	76.0	24.4	52	sw.	11 / 4.9	14,774	4,503	23.5	—4.7	....	wsw.	..... / .....
2:37 p. m...	79.0	26.1	56	sw.	10 / 4.5	1,725	526	79.0	26.1	56	sw.	10 / 4.5

September 23, 1907.—The flight was made with one kite having a lifting surface of 74 square feet (6.8 square meters).

The maximum amount of wire out was 7,000 feet (2,134 meters); wire out at maximum altitude was 7,000 feet (2,134 meters).

About 2/10 cirrus and alto-cumulus clouds were visible during the flight.

At the time of the flight high pressure prevailed over the Canadian Maritime Provinces and over the Northwest. The station was surrounded by an area of low pressure central over Virginia and North Carolina.

September 24, 1907.—The flight was made with four kites having a total lifting surface of 248 square feet (22.9 square meters).

The maximum amount of wire out was 30,000 feet (9,144 meters); wire out at maximum altitude was 30,000 feet (9,144 meters).

At the beginning of the flight a clear sky prevailed, but during the remainder some few alto-cumulus and strato-cumulus clouds were observed.

At the time of the flight an extensive area of low pressure central over Ontario dominated the weather conditions over the eastern half of the country. Showers were general over this section, except in the Ohio Valley, and heavy rain had previously occurred in the Middle Atlantic States and New England. High pressure was moving in from the Northwest, accompanied by much cooler weather, the center being north of the Dakotas.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Sept. 25, 1907	° F.	° C.	%		Miles p. h.	Met's p. s.	Feet.	Meters.	° F.	° C.	%		Miles p. h.	Met's p. s.
1:26 p. m...	56.1	13.4	....	nw.	23	10.3	1,725	526	56.1	13.4	.....	nw.	23	10.3
1:31 p. m...	56.0	13.3	....	nw.	24	10.7	2,938	895	48.9	9.4	.....	nw.	.....	.....
1:44 p. m...	57.2	14.0	....	nw.	24	10.7	4,292	1,308	43.9	6.6	.....	nw.	.....	.....
1:56 p. m ..	57.0	13.9	....	nw.	23	10.3	5,018	1,530	38.8	3.8	.....	nw.	.....	.....
2:20 p. m...	56.5	13.6	....	nw.	19	8.5	6,805	2,074	30.2	—1.0	.....	nw.	.....	.....
3:00 p. m...	57.0	13.9	....	nw.	23	10.3	1,725	526	57.0	13.9	.....	nw.	23	10.3
Sept. 26, 1907														
7:30 a. m...	40.5	4.7	75	nw.	11	4.9	1,725	526	40.5	4.7	75	nw.	11	4.9
7:41 a. m...	41.2	5.1	71	nw.	13	5.8	3,131	954	37.8	3.2	.....	nnw.	.....	.....
7:58 a. m...	41.6	5.3	72	nw.	12	5.4	4,119	1,256	33.6	0.9	.....	nnw.	.....	.....
8:13 a. m...	43.5	6.4	69	nw.	11	4.9	4,712	1,436	31.5	—0.3	.....	nnw.	.....	.....
8:26 a. m...	44.6	7.0	....	nw.	12	5.4	4,712	1,436	31.3	—0.4	.....	nnw.	.....	.....
8:45 a. m...	45.7	7.0	65	nw.	12	5.4	6,698	2,042	39.9	4.4	.....	nw.	.....	.....
9:18 a. m...	46.5	8.1	66	nw.	12	5.4	8,015	2,443	40.1	4.5	.....	nw.	.....	.....
9:28 a. m...	48.0	8.9	67	nw.	12	5.4	9,007	2,746	38.1	3.4	.....	wnw	.....	.....
9:46 a. m...	48.6	9.2	....	nw.	12	5.4	10,051	3,064	39.2	4.0	.....	wnw	.....	.....
10:38 a. m...	49.6	9.8	55	nw.	12	5.4	11,701	3,566	40.3	4.6	.....	w.	.....	.....
2:13 p. m...	54.5	12.5	....	w.	13	5.8	5,954	1,815	37.4	3.0	.....	nw.	.....	.....
2:23 p. m...	64.5	12.5	....	w.	13	5.8	1,725	526	54.5	12.5	.....	w.	13	5.8

September 25, 1907.—The flight was made with one kite having a lifting surface of 68 square feet (6.3 square meters).

The maximum amount of wire out was 8,000 feet (2,438 meters); wire out at maximum altitude was 8,000 feet (2,438 meters).

About 1/10 strato cumulus clouds, moving from the west-northwest, were observed at the beginning of the flight, but the tendency was toward a clear sky thruout the flight.

At the time of the flight a storm was central over the Gulf of St. Lawrence and a strong and cold high pressure area over the interior of the country dominated the weather conditions. Showers had previously occurred in the Lake region, Middle Atlantic States, and New England. Heavy to killing frost had occurred in the region to the southwest of the upper Great Lakes.

September 26, 1907.—The flight was made with four kites having a total lifting surface of 272 square feet (25.2 square meters).

The maximum amount of wire out was 17,000 feet (5,182 meters); wire out at maximum altitude was 17,000 feet (5,182 meters).

From 4/10 to 7/10 cirro-stratus clouds were observed during the flight, but the tendency was toward clearing at the close. A few lower clouds were observed at an altitude of 5,700 feet (1,737 meters) above station. Winds were very changeable in direction and velocity at an altitude of between 3,000 and 4,500 feet (914 and 1,372 meters) above station, calm apparently prevailing most of the time.

At the time of the flight an extensive area of high pressure, central over Ohio, covered the eastern half of the United States. A low-pressure area was moving off over the Gulf of St. Lawrence, and relatively low pressure prevailed over the Southwest.

RESULTS OF KITE FLIGHTS.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Sept. 27, 1907	° F.	° C.	%		*Miles p. h.*	*Met's p. s.*	*Feet.*	*Meters.*	° F.	° C.	%		*Miles p. h.*	*Met's p. s.*
7:25 a. m...	50.0	10.0	66	s.	13	5.8	1,725	526	50.0	10.0	66	s.	13	5.8
7:33 a. m...	50.3	10.2	....	s.	11	4.9	2,406	733	52.7	11.5	.....	s.	.....	.....
7:56 a. m...	51.5	10.8	....	s.	13	5.8	2,844	867	53.2	11.8	.....	wsw.	.....	.....
8:02 a. m...	52.0	11.1	....	s.	15	6.7	3,215	980	51.3	10.7	.....	sw.	.....	.....
8:24 a. m...	51.0	10.6	68	s.	14	6.3	4,305	1,312	48.7	9.3	.....	sw.	.....	.....
8:50 a. m...	51.5	10.8	....	s.	8	3.6	5,355	1,632	48.0	8.9	.....	sw.	.....	.....
9:12 a. m...	52.4	11.3	70	s.	9	4.0	6,104	1,860	46.9	8.3	.....	wsw.	.....	.....
10:58 a. m...	57.0	13.9	67	s.	20	8.9	8,576	2,614	40.8	4.9	.....	wsw.	.....	.....
11:36 a. m...	56.3	13.5	....	se.	16	7.2	6,015	1,833	47.3	8.5	.....	sw.	.....	.....
12:18 p. m...	57.5	14.2	70	se.	16	7.2	1,725	526	57.5	14.2	70	se.	16	7.2
Sept. 28, 1907														
1:27 p. m...	60.7	15.9	86	se.	9	4.0	1,725	526	60.7	15.9	86	se.	9	4.0
1:39 p. m...	61.4	16.3	87	se.	7	3.1	2,874	876	62.1	16.7	.....	s.	.....	.....
1:47 p. m...	61.6	16.4	88	se.	7	3.1	3,915	1,193	60.8	16.0	.....	s.	.....	.....
2:08 p. m...	62.0	16.7	87	se.	7	3.1	5,108	1,557	56.8	13.8	.....	s.	.....	.....
2:47 p. m...	61.0	16.1	89	se.	8	3.6	3,300	1,006	62.2	16.8	.....	se.	.....	.....
2:59 p. m...	60.4	15.8	92	ese.	9	4.0	1,725	526	60.4	15.8	.....	ese.	9	4.0

September 27, 1907.—The flight was made with three kites having a total lifting surface of 204 square feet (18.9 square meters).

The maximum amount of wire out was 12,500 feet (3,810 meters); wire out at maximum altitude was 12,500 feet (3,810 meters).

From 3/10 to 10/10 alto-cumulus and strato-cumulus clouds, from the west, were observed during the entire flight.

At the time of the flight the station was in the center of a high-pressure area covering the Middle Atlantic States. An extensive area of low pressure, accompanied by showers and thunderstorms, was central over eastern Kansas. Heavy precipitation had occurred in Florida and the southern part of the upper Lake region.

September 28, 1907.—The flight was made with one kite having a lifting surface of 150 square feet (14.1 square meters).

The maximum amount of wire out was 6,000 feet (1,829 meters); wire out at maximum altitude was 6,000 feet (1,829 meters).

The sky was overcast with alto-stratus clouds during the entire flight.

At the time of the flight an extensive area of low pressure, central over the southern part of Lake Michigan, dominated the weather conditions over the Ohio Valley, the Lake region and part of the middle Atlantic coast States. An area of moderately high pressure was central over New England and another over Kansas. Heavy rain had previously fallen in the Lake region, the south Atlantic, and Gulf coast States.

RESULTS OF KITE FLIGHT.

Date and hour.	On Mount Weather, Va., 526 m. 1,725 ft.					At different heights above sea.						
	Air temperature.		Rel. hum.	Wind.		Height.		Air temperature.		Rel. hum.	Wind.	
				Dir.	Velocity.						Dir.	Velocity.
Sept. 30, 1907	° F.	° C.	%		*Miles p. h.*	*Met's p. s.*	*Feet.*	*Meters.*	° F.	° C.	%		*Miles p. h.*	*Met's p. s.*
7:26 a. m...	55.5	13.1	79	nw.	17	7.6	1,725	526	55.5	13.1	79	nw.	17	7.6
7:42 a. m...	57.0	13.9	77	w.	15	6.7	2,899	881	53.8	12.1	.....	wnw	.....	.....
8:00 a. m...	58.4	14.7	76	w.	15	6.7	3,441	1,049	52.0	11.1	.....	nw.	.....	.....
8:14 a. m...	59.0	15.0	73	w.	16	7.2	3,986	1,215	49.1	9.5	.....	wnw	.....	.....
8:40 a. m...	59.7	15.4	73	nw.	19	8.5	4,937	1,585	45.0	7.2	.....	w.	.....	.....
9:34 a. m...	59.0	15.0	71	nw.	22	9.8	6,539	1,993	50.2	10.1	.....	w.	.....	.....
9:47 a. m...	59.6	15.3	69	nw.	22	9.8	4,455	1,358	46.8	8.2	.....	wnw	.....	.....
10:10 a. m...	61.0	16.1	68	nw.	24	10.7	1,725	526	61.0	16.1	68	nw.	24	10.7

September 30, 1907.—The flight was made with three kites having a total lifting surface of 204 square feet (18.9 square meters).

The maximum amount of wire out was 10,000 feet (3,048 meters); wire out at maximum altitude was 6,000 feet (1,829 meters).

From 2/10 to 6/10 strato-cumulus clouds were visible during the flight. At an altitude of 4,937 feet (1,505 meters) above sea level the uppermost kite was in the clouds.

At the time of the flight a ridge of high pressure extended from the Dakotas southeastward to the Middle Atlantic States. The pressure was low in the upper St. Lawrence Valley and over New Mexico. Heavy rain had previously fallen in New England.