pole can most easily respond; sometimes a special note, started by the wire at the upper end of the pole, is reinforced by resonance, and that which is only feeble on the wire becomes most prominent on the pole. Of course, the stronger the wind and the more gusty it is, so much the more active will be the humming of the wire and the pole. If the wind blows lengthwise of the wire it will bring out a different combination of notes from those produced by a transverse wind. Therefore, the direction of the wind has some influence upon the humming of the telegraph poles, but the direction of the wind depends upon the location of the storm center, and is a good basis for local prediction as to rain. Hence, those who have studied the humming very closely have frequently declared that they can tell the weather by the character of the humming.

According to a clipping from the Saturday Budget, Quebec, Ont., March 12, 1904, a prominent meteorologist in Toronto has made a series of observations and arrives at the following conclusions:

* * * the humming of wires running east and west invariably presaged a fall of temperature, often ten or more hours in advance of the thermometer; the humming of wires running north and south advised a rise in temperature, almost always several hours in advance of the thermometer. Wires running east and west never hummed together with wires running north and south, not even when the same wires running along an east and west street turned down a north and south side; only that portion of them hummed that indicated a rise or fall in temperature, as explained above. If one part hummed the other part was silent.

It seems evident to us that the humming is due entirely to the action of the wind. We see no necessity for assuming that electric currents, either in the air or in the wire, or any other mystery need to be considered. Those who invoke electricity must give some plausible reason why the current should oscillate with such frequency as to cause the rapid vibrations that must exist in order to cause audible sound.

NOTE ON THE GREAT METEOR OF SEPTEMBER 15, 1902.

Since printing the article by Mr. Mosely on page 172 of the April REVIEW, he has received the following record from Thomas Mikesell, voluntary observer at Wauseon, Ohio, 33 miles west of Toledo (in latitude 41° 35′ north, longitude 84° 7′ west), who says:

Several persons about Wauseon saw the meteor, though I did not see it myself. My record states that at 5:45 a. m., central standard time, I looked out of the window and saw a curious streak, like a thin, white cloud, extending from near the east, northward about 40°. It was about three-fourths of a degree wide, of serpentine form, with a few short kinks. It continued visible for fifteen or twenty minutes and hardly moved from where I first saw it, though it changed to an ashy color. I noted the time at once on seeing it. I estimated the altitude at about 25°, perhaps a little lower at the north end.

Mr. Mosely adds:

This would seem to show that the trail remained visible at Wauseon for nearly an hour and a half after the passage of the meteor. The estimate of altitude is in substantial accord with the conclusions I had already reached.

WEATHER BUREAU MEN AS INSTRUCTORS.

Mr. Edward L. Wells, Observer, Boise, Idaho, reports that on June 10 some 30 teachers of the Ada County Teachers' Institute visited the local office of the Weather Bureau, and listened to an informal talk on the use of the instruments and the work of the Bureau. The teachers evinced more than a passing interest in these matters, and some of them desired to study the instruments more in detail in order that they might be better able to instruct their pupils.

On May 14 he addressed the class in physical geography from the Boise High School on observations and map making and the collection of meteorological data.

On June 9, Mr. Wm. G. Burns, Section Director, Springfield, Ill., addressed an advanced class from the Convers Public School on the general scope of Weather Bureau work.

Mr. J. R. Weeks, Observer, Macon, Ga., on June 3 delivered an illustrated lecture before 200 students of the Georgia-Alabama Business College on the Subject, "Weather and Business."

Mr. James H. Scarr, Observer, Sacramento, Cal., and Mr. E. Bonnett, Assistant Observer, on May 13 lectured to the class in physics from the city high school, which came to the office in two sections. The instruction consisted of an explanation of the instruments and weather maps, with some remarks on the scope and limitations of weather forecasting. Members of the class have since frequently visited the office for fuller instruction on special points.

THE WEATHER OF THE MONTH.

By Mr. W. B. STOCKMAN, District Forecaster, in charge of Division of Meteorological Records.

PRESSURE.

The distribution of mean atmospheric pressure is graphically shown on Chart VIII and the average values and departures from normal are shown in Tables I and VI.

The mean pressure for May, 1904, was highest, with readings of about 30.10 inches, on the north Pacific coast, with a secondary area of somewhat lower pressure over the middle Atlantic and New England coasts. It was lowest over the southern Platean region, with minimum readings of 29.75 inches in southern Arizona.

The mean pressure was above the normal in New England, the eastern portion of the Middle Atlantic States, eastern Texas, Missouri Valley, middle and northern slope, northern Plateau, and north Pacific regions, and slightly below normal in the remaining districts. The greatest plus departures were .10 inch in the northwestern portion of the north Pacific region, and the maximum minus departures occurred on the southern coast of and in the interior of California and ranged from —.05 to —.09 inch.

The mean pressure for the month increased over that of April, 1904, in the north Pacific region, New England, and the eastern portion of the Middle Atlantic States, and diminished in the remaining districts.

The increase in New England and the eastern portion of the Middle Atlantic States was slight, while in the north Pacific region it ranged from +.05 to +.11 inch. Over the greater portion of the area where there was a decrease the changes were quite marked, ranging from —.15 to —.20 inch, in the north-central section of the United States.

TEMPERATURE OF THE AIR.

The distribution of maximum, minimum, and average surface temperatures is graphically shown by the lines on Chart V.

The mean temperature of the month was below normal in the Southern States, except the eastern portions of Virginia, North Carolina and Kentucky, and central Florida, in Kansas, eastern and northern Colorado, Utah, Wyoming, eastern Montana, western North Dakota, northeastern Oregon, Washington, and on the south-central coast of California; and above normal in the remaining districts.

In northern and central California, south-central Arizona, the eastern parts of the Dakotas, northern lower Michigan, southeastern Wisconsin, New England, New York, eastern Pennsylvania, and northern and central New Jersey the changes were from +2.0° to somewhat more than +4.0°. The minus departures were not so large.

Maximum temperatures of 90°, or higher, occurred generally south of the fortieth degree of latitude, except in the mountain regions of the Virginias and Carolinas, middle western States, slope and Plateau regions. They also occurred in southeastern Pennsylvania, central Ohio, interior California, and north-central Oregon. Maximum temperatures of 100°, or higher, occurred in the lower Rio Grande Valley, west-central Texas, western Arizona, and interior California.

Freezing temperatures occurred in scattered localities in the Northern States, and quite generally over the slope and Plateau regions.

The average temperatures for the several geographic districts and the departures from the normal values are shown in the following table:

Average temperatures and departures from normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	8	56.8	+ 2.9	—11.6	— 2.3
Middle Atlantic	12	63.4	+ 1.9	—13.8	— 2.8
South Atlantic	10	69.7	— 0.2	— 9.8	— 2.0
Florida Peninsula*	8	76.1	+ 0.2	+ 2.7	+ 0.5
East Gulf	9	71.1	— 1.3	— 4.7	— 0.9
West Gulf	7	71.7	— 0.9	+ 4.7	+ 0.9
Ohio Valley and Tennessee	11	64.9	— 0.2	—12.8	— 2.6
Lower Lake	8	58.6	+ 1.8	—16.6	— 3.3
Upper Lake	10	53.2	+ 1.6	—16.9	— 3.4
North Dakota*	8	54.5	+ 1.6	—13.9	— 2.8
Upper Mississippi Valley	11	61.5	+ 0.1	—14.7	— 2.9
Missouri Valley	11	60.8	+ 0.7	— 3.5	— 0.7
Northern Slope	7	53.6	+ 0.1	+ 5.5	+ 1.1
Middle Slope	6	61.4	— 0.6	+ 8.2	+ 1.6
Southern Slope*	6	68.5	— 1.4	+10.9	+ 2.2
Southern Plateau*	13	64.5	0.0	+ 8.5	+ 1.7
Middle Plateau*	8	55.4	— 0.5	+ 5.1	+ 1.0
Northern Plateau*	12	55.3	+ 0.6	+11.7	+ 2.3
North Pacific	7	53.2	— 0.6	+ 0.7	+ 0.1
Middle Pacific	5	60.7	+ 2.2	+ 2.1	+ 0.4
South Pacific	4	63.0	+ 0.6	+ 3.4	+ 0.7

*Regular Weather Bureau and selected voluntary stations.

In Canada.—Prof. R. F. Stupart says:

The temperature was below the average over British Columbia and the western portion of the Northwest Territories, and above the average elsewhere throughout the Dominion. The most marked positive departures were recorded in the Ottawa and upper St. Lawrence valleys, Montreal, and Ottawa, each being 5°; Quebec was 4°, the peninsula of Ontario about 3°, and Manitoba and the Maritime Provinces 2°. The chief negative departures were Barkerville, 5°, Kamloops, 4°, Battleford, 3°.

PRECIPITATION.

The distribution of total monthly precipitation is shown on Chart III.

The precipitation was above the normal in southwestern Florida, southwestern Tennessee, scattered portions of Ohio, Michigan, except the southeastern part, northeastern Wisconsin, north-central Montana, northwestern Missouri, Kansas, Colorado, northern Arizona, Utah, Wyoming, south-central South Dakota, Nebraska, except the northeastern portion, and east-central Texas; elsewhere the precipitation was below the average.

The excess in precipitation was marked in southern Florida, east-central Texas, Wyoming, northwestern Missouri, northeastern Kansas, northeastern Wisconsin, and upper Michigan. The deficiency in precipitation was not so marked, but equaled or exceeded 2.0 inches in southern North Carolina, South Carolina, northeastern Georgia, north-central Kentucky, southwestern Missouri, central Arkansas, southern Mississippi, southwestern Alabama, extreme western Florida, and southwestern Washington.

The greatest amounts of precipitation were reported from southern Florida, east-central and southern Texas, northwestern Missouri, northeastern Kansas, and southeastern Wyoming.

No measurable amounts of snowfall occurred except over the Upper Michigan Peninsula and at elevated points in the mountain and Plateau districts.

HAIL.

The following are the dates on which hail fell in the respective States:

Alabama, 7, 29, 30. Arizona, 1, 11, 21, 24. Arkansas, 5, 8, 17, 26, 29. California, 1, 18, 25, 27, 28. Colorado, 1, 2, 3, 4, 7, 15, 16, 18, 19, 20, 21, 24, 25, 26, 28, 30, 31. Connecticut, 19. District of Columbia, 19. Florida, 2, 20, 30, 31. Georgia, 9, 23, 29, 30, Idaho, 6, 14, 19, 24. Illinois, 7, 9, 12, 14, 18, 22, 23, 24, 26. Indiana, 3, 9, 10, 14, 15, 23, 24. Indian Territory, 1, 5, 16, 17, 29. Iowa, 5, 7, 9, 12, 13, 17, 22, 24, 25. Kansas, 3, 4, 5, 6, 7, 8, 23, 24, 25, 26, 28, 29, 31. Kentucky, 23, 24, 25, 26, 29. Louisiana, 1, 5, 13, 28, 29, 30. Maine, 19, 20, 28. Maryland, 1, 30. Massachusetts, 15, 16, 20, 25, 26. Michigan, 10, 13, 14, 15, 22, 26, 29. Minnesota, 5, 7, 8, 10, 12, 13, 22, 23, 24, 25. Mississippi, 5, 8, 16, 29, 30. Missouri, 5, 9, 17, 18, 22, 23. Montana, 6, 7, 10, 14, 31. Nebraska, 5, 7, 8, 12, 16, 20, 23, 24, 25, 26, 29, 30, 31. Nevada, 20, 24, 25, 26, 27. New Hampshire, 16, 25, 26. New Jersey, 19, 27. New Mexico, 2, 4, 6, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28. New York, 15, 18, 19, 22, 23, 25, 26. North Carolina, 2, 3, 9, 10, 17, 18, 26, North Dakota, 1, 5, 6, 8, 10, 11. Ohio, 3, 10, 15, 18, 23, 24, 25, 26. Oklahoma, 3, 6, 7, 8, 12, 15, 16, 25, 28, 29. Oregon, 6, 17. Pennsylvania, 1, 14, 15, 19, 25, 26, 27. Rhode Island, 16, 18. South Carolina, 3, 31. South Dakota, 4, 8, 12, 24, 28, 30, 31. Tennessee, 4, 5, 7, 13, 26, 27, 29. Texas, 1, 2, 4, 5, 6, 7, 12, 13, 16, 17, 27, 28, 29. Utah, 7, 14, 17, 19, 20, 21, 23, 24, 25, 26, 27. Virginia, 2, 9, 18, 24, 25, 26, 27, 31. Washington, 4, 6, 18. West Virginia, 10, 14, 15, 18, 29. Wisconsin, 8, 12, 22, 23, 29. Wyoming, 1, 2, 3, 4, 6, 7, 10, 14, 15, 19, 20, 21, 24, 27, 30, 31.

SLEET.

The following are the dates on which sleet fell in the respective States:

Arizona, 1. Colorado, 1, 2, 3, 4, 5, 7, 14, 15, 21. Michigan, 8, 9, 10, 13, 14, 15, 16. Minnesota, 9, 13, Nebraska, 12. Nevada, 1, 2, 25, 26. New Mexico, 2, 3. New York, 15. North Dakota, 11, 12, 13. Ohio, 15. South Dakota, 12. Utah, 1, 2, 24, 26. Washington, 4. Wisconsin, 14.

Average precipitation and departure from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	8	3.18	89	—0.4	—0.3
Middle Atlantic	12	2.23	61	—1.4	—5.7
South Atlantic	10	2.09	52	—1.9	—7.1
Florida Peninsula*	8	3.68	103	+0.1	+0.8
East Gulf	9	2.66	64	—1.5	—10.6
West Gulf	7	4.16	95	—0.2	—4.6
Ohio Valley and Tennessee	11	3.20	84	—0.6	—3.5
Lower Lake	8	3.10	91	—0.3	+2.8
Upper Lake	10	3.85	115	+0.5	+0.2
North Dakota*	8	1.54	72	—0.6	—0.3
Upper Mississippi Valley	11	3.49	83	—0.7	—0.5
Missouri Valley	11	4.34	105	+0.2	+0.1
Northern Slope	7	3.38	148	+1.1	+0.2
Middle Slope	6	4.19	117	+0.6	—0.8
Southern Slope*	6	3.74	93	—0.3	—3.2
Southern Plateau*	13	0.60	100	0.0	—2.1
Middle Plateau*	8	1.64	174	+0.7	+2.0
Northern Plateau*	12	0.67	36	—1.2	+0.5
North Pacific	7	1.14	40	—1.7	+1.5
Middle Pacific	5	0.36	23	—1.2	+4.9
South Pacific	4	0.11	35	—0.2	—0.4

*Regular Weather Bureau and selected voluntary stations.

In Canada.—Professor Stupart says:

The rainfall was very deficient over British Columbia, as well as over Manitoba and the Northwest Territories, except locally in the Qu'Appelle Valley and northeastern Saskatchewan. It was also below the average in portions of Ontario east and north of the eastern part of Lake Ontario. Eastern Nova Scotia and Prince Edward Island were likewise below average, whereas Quebec and the large remaining portions of Ontario

and the Maritime Provinces were nearly everywhere well above the average. The most noticeable positive departures were Father Point, 4 inches; Montreal, 2 inches; Parry Sound, 2.4 inches, and the chief negative departures were Barkerville, 1.5 inches; Kamloops and Edmonton, 1.2 inches; Minnedosa, 0.8 inch; Sydney, 1.5 inches; Charlottetown, 1.0 inch.

CLEAR SKY AND CLOUDINESS.

The distribution of clear sky is graphically shown on Chart IV, and the numerical values of average daylight cloudiness, both for individual stations and by geographic districts, appear in Table I.

The cloudiness was normal in the Ohio Valley and Tennessee and North Dakota; above normal in the Lake region, Missouri Valley, and the middle slope and middle and southern Plateau regions; elsewhere it was below the normal.

The average cloudiness for the various districts, with departures from the normal, are shown in the following table:

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	4.9	— 0.6	Missouri Valley	5.6	+ 0.2
Middle Atlantic	4.6	— 0.6	Northern Slope	4.5	— 0.9
South Atlantic	3.8	— 0.6	Middle Slope	5.6	+ 0.8
Florida Peninsula	4.4	— 0.1	Southern Slope	3.8	— 0.7
East Gulf	3.6	— 0.7	Southern Plateau	2.7	+ 0.5
West Gulf	4.4	— 0.5	Middle Plateau	4.2	+ 0.1
Ohio Valley and Tennessee	5.1	0.0	Northern Plateau	5.2	— 0.4
Lower Lake	5.5	+ 0.3	North Pacific	5.4	— 0.5
Upper Lake	5.9	+ 0.4	Middle Pacific	2.8	— 1.4
North Dakota	5.3	0.0	South Pacific	3.8	— 0.4
Upper Mississippi Valley	5.0	— 0.2			

HUMIDITY.

The relative humidity was normal in the southern Plateau region; above normal in North Dakota, upper Mississippi Valley, the northern and middle slope and Plateau and south Pacific regions; and below normal in the remaining districts.

The averages by districts appear in the subjoined table:

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
	%			%	
New England	76	— 2	Missouri Valley	64	— 1
Middle Atlantic	68	— 4	Northern Slope	64	+ 6
South Atlantic	68	— 6	Middle Slope	66	+ 5
Florida Peninsula	75	— 1	Southern Slope	59	— 2
East Gulf	65	— 6	Southern Plateau	32	0
West Gulf	71	— 4	Middle Plateau	48	+ 2
Ohio Valley and Tennessee	67	— 1	Northern Plateau	58	+ 2
Lower Lake	70	— 1	North Pacific	75	— 1
Upper Lake	71	— 1	Middle Pacific	60	— 6
North Dakota	67	+ 5	South Pacific	71	+ 2
Upper Mississippi Valley	69	+ 1			

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Amarillo, Tex	7	54	n.	North Head, Wash	5	52	se.
Buffalo, N. Y	26	55	w.	Do	17	53	se.
Dodge, Kans	24	60	s.	Point Reyes Light, Cal	1	57	nw.
Galveston, Tex	4	54	e.	Do	2	61	nw.
Lexington, Ky	25	52	sw.	Do	3	72	nw.
Little Rock, Ark	17	56	nw.	Do	4	75	nw.
Marquette, Mich	22	52	w.	Do	5	60	nw.
Modena, Utah	1	52	sw.	Do	6	70	nw.
Do	18	53	sw.	Do	7	55	nw.
Do	25	52	sw.	Do	10	63	nw.
Mount Tamalpais, Cal	3	56	w.	Do	13	66	nw.
Do	6	53	nw.	Do	14	62	nw.
Do	10	50	nw.	Do	15	52	nw.
Do	13	59	nw.	Do	18	67	nw.
Do	18	68	nw.	Do	19	52	nw.
Do	24	60	sw.	Southeast Farallon, Cal	14	55	nw.
Do	31	52	nw.	Do	15	50	nw.

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table IV, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 5131 thunderstorms were received during the current month as against 5690 in 1903 and 2498 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country was most numerous were: 25th, 417; 26th, 362; 30th, 318; 31st, 303; 24th, 282.

Reports were most numerous from: Missouri, 266; Ohio, 260; Nebraska, 256; Kansas, 243; Texas, 237.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the dates of full moon, viz, April 25 to May 3, inclusive, and May 25 to June 2, inclusive.

In Canada: Thunderstorms were reported from St. Johns, N. B., 27; Sydney, 27; Charlottetown, 20, 27; Quebec, 21; Montreal, 25; Ottawa, 22; Kingston, 25; Toronto, 23, 25, 26; Port Stanley, 13, 23, 26; Saugeen, 23, 25; Parry Sound, 23, 25, 26; Port Arthur, 6, 22, 29; Winnipeg, 21; Minnedosa, 26; Qu'Appelle, 2, 4, 27; Swift Current, 21, 28, 30; Edmonton, 21; Battleford 4.

Auroras were reported from Winnipeg, 14, 19; Swift Current, 12, 13, 16; Calgary, 12; Edmonton, 12, 13, 14, 17.

DESCRIPTION OF TABLES AND CHARTS.

By Mr. W. B. STOCKMAN, District Forecaster, in charge of Division of Meteorological Records.

For description of tables and charts see page 136 of REVIEW for March, 1904.