400 farmers on a single route a copy of the official forecasts within a few hours after its issue. This new feature of the postal service is gaining in popularity and is being rapidly extended, and it will be utilized as fully as possible by the Weather Bureau. The forecast is stamped by the logotype system previously referred to upon a small slip of paper and a copy furnished each carrier on the rural carrier's route. To illustrate the form in which the forecast reaches the farmer the following specimen blank containing an ordinary forecast is reproduced:

Form No. 1049 A—Met'l.

WEATHER FORECAST.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.
Willis L. Moore, Chief U. S. Weather Bureau.

RAIN TO-NIGHT AND TUESDAY;
WARMER TO-NIGHT.

The increase that has been made in the distribution of the forecasts of the Weather Bureau since its transfer from the War Department to the Department of Agriculture is illustrated by the following table:

Distribution of daily forecasts, special and emergency warnings.

Year.	By telegraph or telephone, at Government expense.			Without expense to the Government, by—				Grand total.	Per cent of increase.
	Daily forecasts.	Special warnings.	Emergency warnings.*	Mail.	Telegraph or telephone.	Railroad telegraph.	Railroad train.		
1892	1,888	592	.....	639	533	1,204	1,462	6,368	....
1893	1,613	632	.....	3,065	620	2,129	1,264	9,323	46
1894	1,778	609	.....	4,361	947	2,219	1,818	11,232	21
1895	1,920	633	3,494	11,732	1,239	2,346	1,218	22,582	102
1896	1,581	790	3,494	22,642	1,712	3,550	1,999	35,503	57
1897	1,886	613	3,481	37,913	2,347	3,196	2,258	51,694	46
1898	2,093	592	3,461	50,032	2,623	3,354	2,505	64,675	25
1899	1,762	768	6,769	56,308	2,778	2,902	2,423	73,710	14
1900	1,857	791	7,096	76,593	8,297	3,314	2,423	100,371	36

*Emergency warnings go to all places receiving the ordinary forecasts and special warnings. This system of stations was established in 1895.

It is the desire of the Department to further increase the usefulness of the service wherever possible, and any community not now receiving the benefit thereof will have its interests carefully considered and served, if possible, upon application to the Weather Bureau official in charge of the territory in which such community may be situated. Communications in connection with this subject, addressed "U. S. Weather Bureau official in charge" (giving the name of the central station of the district in which the writer may be located), will receive prompt and considerate attention. These central stations and districts are as follows:

Montgomery, Ala.; Phoenix, Ariz.; Little Rock, Ark.; San Francisco, Cal.; Denver, Colo.; Jacksonville, Fla.; Atlanta, Ga.; Boise, Idaho; Springfield, Ill.; Indianapolis, Ind.; Des Moines, Iowa; Topeka, Kans.; Louisville, Ky.; New Orleans, La.; Baltimore, Md. (for Delaware and Maryland); Boston, Mass. (for New England); Lansing, Mich.; Minneapolis, Minn.; Vicksburg, Miss.; Columbia, Mo.; Helena, Mont.; Lincoln, Nebr.; Carson City, Nev.; New Brunswick, N. J.; Santa Fe, N. Mex.; Ithaca, N. Y.; Raleigh, N. C.; Bismarck, N. Dak.; Columbus, Ohio; Oklahoma, Okla. (for Oklahoma and Indian Territory); Portland, Oreg.; Philadelphia, Pa.; Columbia, S. C.; Huron, S. Dak.; Nashville, Tenn.; Galveston, Tex.; Salt Lake City, Utah; Richmond, Va.; Seattle, Wash.; Parkersburg, W. Va.; Milwaukee, Wis.; Cheyenne, Wyo.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological Observations at Honolulu, January, 1901.

The station is at 21° 18′ N., 157° 50′ W.
Hawaiian standard time is 10h 30m slow of Greenwich time. Honolulu local mean time is 10h 31m slow of Greenwich.
Pressure is corrected for temperature and reduced to sea level, and the gravity correction, —0.06, has been applied.
The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force, or amounts of cloudiness, connected by a dash, indicate change from one to the other.
The rainfall for twenty-four hours is measured at 9 a. m. local, or 7.31 p. m., Greenwich time, on the respective dates.
The rain gage, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2.29 a. m., Honolulu time.								Total rainfall at 9 a. m., local time.
				Temperature.		Means.		Wind.		Average cloudiness.	Sea-level pressures.		
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Prevailing direction.	Force.		Maximum.	Minimum.	
	*	†	†			‡	‡		§				
1	29.93	69	62.5	.....	.....	56.7	69	nne.	0-3	10	30.00	29.92	0.00
2	29.91	63	59	77	66	58.3	62	nne.	1-3	0-1	29.99	29.85	0.00
3	29.90	62	60	77	62	59.3	72	w-ne.	1-0	1-3	29.97	29.86	0.00
4	29.88	69	66	75	60	61.7	83	s.	1-0	10-0	29.94	29.85	0.01
5	29.94	63	62.3	79	63	65.5	79	s.	1-0	3	29.96	29.87	0.00
6	29.94	65	63	77	63	64.3	83	s-ne.	1-0	4	30.00	29.90	0.00
7	29.97	69	66.5	80	65	64.0	75	sw-ne.	1-0	3-0	30.01	29.89	0.04
8	30.03	72	65	79	67	64.5	73	ne.	3	1-4	30.06	29.97	0.06
9	30.06	72	66	78	68	61.7	64	ne.	4	4	30.11	30.02	0.03
10	30.05	71	67	78	71	62.5	67	ene.	4-5	4	30.13	30.04	0.05
11	30.02	63	61.7	79	70	63.5	73	ne.	3	4-1	30.10	29.96	0.00
12	29.99	61	59	78	62	62.3	79	w.	0-1	0-1	30.06	29.96	0.00
13	30.02	68	66	79	60	61.5	73	sw-ne.	1-3	0-5	30.06	29.96	0.46
14	30.00	72	66	72	68	66.3	88	nne.	2-7	10	30.06	29.97	1.25
15	29.92	66	64	76	70	65.3	75	ne.	5-2	5	30.03	29.93	0.11
16	29.90	63	62.3	78	66	65.7	82	sw-w.	1	1-6	29.97	29.86	0.00
17	29.96	69	65	79	63	64.5	79	w-nne.	1	1-5	29.99	29.85	0.01
18	30.04	68	61	72	68	60.7	74	nne.	5-7	2	30.06	29.97	0.01
19	30.06	69	60	73	67	55.5	59	nne.	6-4	1	30.12	30.02	0.00
20	30.08	70	62.5	75	68	57.3	61	ne.	4-3	3	30.13	30.05	0.18
21	30.08	72	64	76	66	58.7	61	ne.	4-5	3	30.14	30.06	0.00
22	30.05	72	61	77	71	60.0	68	ne.	4	4	30.12	30.05	0.01
23	30.03	70	64	76	71	59.7	63	ne.	4	3	30.12	29.99	0.07
24	30.04	72	65	77	68	61.3	67	ne.	4	3	30.11	30.00	0.00
25	30.06	66	64.5	79	70	62.0	69	ne.	3	6	30.10	30.02	0.17
26	30.11	70	63.5	80	64	63.3	73	ne-s.	1	4	30.14	30.08	0.00
27	30.04	71	62.5	77	63	60.0	65	ne.	3-0	3	30.17	30.04	0.00
28	29.93	67	63.5	77	65	59.0	63	ne.	3	3	30.06	29.93	0.00
29	29.94	66	63	79	66	62.3	74	e-ne.	3	4	29.96	29.88	0.00
30	29.91	63	62	80	63	63.3	75	ne-s.	1	3	29.96	29.88	0.00
31	29.89	63	62	79	63	64.0	83	sw.	1	6	29.95	29.85	0.64
Sums.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.10
Means.	29.990	67.6	63.2	77.3	65.9	61.9	73	.....	2.4	3.6	30.05	29.95	—0.10
Departure.	+.049	.....	.....	.....	.....	—1.1	—3.7	.....	.....	—0.9	.....	.....	.....

Mean temperature for January, 1901 (6+2+9) ÷ 3 = 71.3; normal is 70.1. Mean pressure for January, 1901 (9+3) ÷ 2 = 29.998; normal is 29.949.
*This pressure is as recorded at 1 p. m., Greenwich time. †These temperatures are observed at 6 a. m., local, or 4.31 p. m., Greenwich time. ‡These values are the means of (6+9+2+9) ÷ 4. §Beaufort scale.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Manuel E. Pastrana, Director of the Central Meteorologic-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the Boletin Mensual. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the MONTHLY WEATHER REVIEW since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart IV.

Mexican data for January, 1901.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
	Feet.	*Inch.*	°*F.*	°*F.*	°*F.*	%	*Inch.*		
Chihuahua	4,633	25 88	64.0	28.2	47.5	60	0.00	w.	w.
Leon (Guanajuato)	5,934	24.34	76.5	37.0	56.8	58	0.03	nnw.	sw.
Linares (Nuevo Leon)	1,188	28.81	86.0	37.4	60 6	76	1.85	s.	s.
Mazatlan	25	29.98	78.3	58.5	70.3	77	0.02	nw.	sw.
Mexico (Obs. Cent.)	7,472	23.09	73.9	36.7	55.6	54	.....	ne.	ne.
Morelia (Seminario)	6,401	.....	.....	.....	.....	.....	.....	.....	.....
Puebla (Col. Cat.)	7,112	23.42	75.2	37.9	57.2	59	.....	e.	ssw.
Saltillo (Col. S. Juan)	5,399	24.83	73.4	32.0	53.8	76	0.87	n.	s.
San Luis Potosi	6,202	.....	.....	.....	....	.....	.....	.....	.....
Tampico	38	..	.....	.....	.....	.....	.....	.....	....
Zapotlan (Seminario)	5,078	.....	.....	.....	.....	.....	.....	.....	....

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Popular Science. New York. Vol 58.

Watts, H. M. The Weather vs. The Newspaper. P. 381.

Scientific American. New York. Vol. 84.

—— A New Flying Machine. [Davidson's.] P. 72.

Nederlandsch Tijdschrift voor Meteorologie, Groningen. 1 *Jahrg.*

Sieberg, A. Over Veranderlijked der Temperatuur en de oorzaken van de grootere schommelingen in de temperatuur te Aken. P. 98.

Proceedings of the Royal Society. London. Vol. 67.

Lockyer, Norman, and Lockyer, W. J. S. Solar Changes of Temperature and Variations in Rainfall in the Region surrounding the Indian Ocean. P. 409.

Astrophysical Journal. Chicago. Vol 13.

Newcomb, Simon. Period of the Solar Spots. P. 1.

Himmel und Erde. Berlin. 13 *Jahrg.*

Neesen, F. Ueber Gewitter und Blitzableiter. P. 145.

Comptes Rendus de l'Académie des Sciences. Paris. Tome 132.

Lannelongue, Achard et Gaillard. De l'influence du climat sur l'évolution de la tuberculose pulmonaire expérimentale. P. 114.

Angot, Alfred. Sur la relation de l'activité solaire avec la variation diurne de la déclinaison magnétique. P. 254.

Journal of School Geography. Lancaster, Pa. Vol. 5.

Jefferson, M. S. W. Weather Map Exercises for High School Pupils. P. 51.

La Nature. Paris. 29*me année.*

Plumandon, P. R. Les orages à neige. P. 171.

Cunha, A. da. L'Observatoire Météorologique de Trappes. Cerfs-volants et Ballons-sondes. P. 179.

Meteorologische Zeitschrift. Band 18. *Wien.*

Billwiller, R. Bildung barometrischer Theilminima durch Föhne. P. 1.

Woeikof, A. Klima und Föhne der Dänemark-Insel, Scoresby-Sund. P. 5.

Valentin, J. Einige Ergebnisse der österreichischen Luftballons bei der internationalen Fahrt am 12 Mai 1900. P. 10.

—— Zur Einführung in die neueren Anschauungen über die Ursachen der Luftelektricität. P. 17.

—— Meteorologische Preisaufgabe. P. 25.

Pernter, J. M. Der zweite internationale Wetterschiess-Kongress in Padua. P. 25.

Hann, J. Teisserenc de Bort über den jährlichen Gang der Temperatur in grossen Höhen der freien Atmosphäre. P. 28.

Sieberg, A. Temperaturumkehrungen mit der Höhe zwischen Aachen und dem Aussichtsthurm im Aachener Walde. P. 33.

Polis, P. Ergebnisse der Luftdruckbeobachtungen zu Aachen 1838–1851 und 1858–1897. P. 34.

Wegrosta, K. Föhnsturm in Spital am Pyhrn. P. 35.

Fruh, J. Föhn in Fort Good Hope 66° 20′ N. am Mackenzie River (Kanada). P. 36.

Scholtz, M. Irrlicht oder elektrische Erscheinung? P. 36.

Less, E. Kugelblitze über Wolken. P. 39.

Pockels, F. Zur Bestimmung der Maximalstromstärke von Blitzen. P. 40.

Wolfer, A. Provisorische Sonnenflecken-Relativzahlen für das IV Quartal 1900. P. 42.

Philosophical Magazine. London. Vol. 1. *6th Series.*

Townsend, J. S. Conductivity produced in Gases by the Motion of negatively charged Ions. P. 198.

Schuster, A. Electric Inertia and the Inertia of Electric Convection. P. 227.

Quarterly Journal of the Royal Meteorological Society. London. Vol. 27.

Ekholm, Nils. On the Variations of the Climate of the Geological and Historical Past and their Causes. P. 1.

Curtis, Richard H. An improved Mounting for the Lens and Bowl of the Campbell-Stokes Sunshine Recorder. P. 63.

Dines, W. H. Weekly Death rate and Temperature Curves 1890 to 1899. P. 69.

Mellish, Henry. Seasonal Rainfall of the British Isles. P. 79.

Nature. London. Vol. 63.

—— Audibility of the Sound of Firing on February 1. P. 372.

LONG RANGE SEASONAL FORECASTS FOR THE PACIFIC COAST STATES.

By ALEXANDER McC. ASHLEY.

While some advances in the art of practical forecasting have been made during the past two decades, the trained meteorologist, whose investigations are conducted along conservative scientific lines, candidly admits, that for the present, at least, weather conditions can not be accurately forecast for any considerable period in advance of their occurrence. The greater portion of his time, therefore, has been devoted to the perfection of a method or system which enables him to give to the public an accurate and practical forecast of the weather conditions which may be expected to prevail over a given area during the following thirty-six hours. Under favorable circumstances these forecasts may be extended to embrace a two-day, or even a slightly longer period; on the other hand, weather conditions may change with such rapidity that to forecast successfully, for even a twenty-four-hour period, is attended with the greatest difficulty.

There are those, however, who have the hardihood to publish long-range forecasts which are couched in such ambiguous terms that they seem to be verified no matter what may actually be the subsequent weather conditions that they purport to foretell, or else upon rigid verification, are proven to be absolute failures. Indeed, the field of long-range forecasting is so overrun by unscrupulous persons of this class that the honest scientific investigator is loath to enter it. Nevertheless, long-range forecasting must be regarded as the ultimate aim of the meteorologist, and there can be no doubt that the persistent efforts of scientific men will at last be rewarded, and a process evolved whereby general conditions may be foretold with reasonable accuracy months in advance. Such forecasts are of two distinct kinds:

(1) Forecasts of the actual meteorological phenomena will occur upon a specified date.

(2) Seasonal forecasts, i. e., forecasts of the variations in average weather conditions during corresponding seasons in successive years.

Forecasts of the first class can be made only after the many and complex laws underlying meteorological manifestations have been discovered, but long before this has been accomplished, success in the formulation of seasonal forecasts, for certain sections, at least, will have been realized.

Several years ago an official of the United States Weather Bureau invited attention to some very interesting and instructive data in connection with a severe drought which had been experienced throughout the State of California. The data collected suggested the possibility of a long-range seasonal forecast of average rainfall conditions for the Pacific coast States, more especially for California, and the ingenious and attractive theory advanced created quite a stir and