TABLE 3.—*Amounts by which the highest temperatures previously recorded for the specified stations and months were exceeded during the corresponding month of 1903–4.*

Station.	Month.	Number of years of record.	Previous record exceeded by—	Station.	Month.	Number of years of record.	Previous record exceeded by—
			°F.				°F.
Fresno, Cal	Dec., 1903	16	1	Meridian, Miss	Feb., 1904	15	1
Lander, Wyo	....do	12	4	Palestine, Tex	....do	23	1
Miles City, Mont	....do	12	4	Richmond, Va	....do	7	1
Amarillo, Tex	Jan., 1904	13	1	Tacoma, Wash	....do	8	1
Carson City, Nev	....do	17	1	Wichita, Kans	....do	16	1
Dodge, Kans	....do	30	1	Yuma, Ariz	....do	29	1
Fresno, Cal	....do	17	1	Eastport, Me	....do	32	2
Corpus Christi, Tex	....do	18	2	Pueblo, Colo	....do	16	2
Lander, Wyo	....do	13	2	Roseburg, Oreg	....do	27	2
Palestine, Tex	....do	23	2	Valentine, Nebr	....do	18	2
San Luis Obispo, Cal	....do	11	2	Albany, N. Y	....do	31	3
Walla Walla, Wash	....do	19	2	El Paso, Tex	....do	26	4
Port Crescent, Wash	....do	10	3	Binghamton, N. Y	....do	8	5
San Diego, Cal	....do	33	3	Dodge, Kans	....do	30	5
Elkins, W. Va	....do	6	4	Abilene, Tex	....do	19	9
Helena, Mont	....do	25	4	Amarillo, Tex	....do	13	9
Fort Worth, Tex	....do	6	5	Oklahoma, Okla	....do	14	10
Knoxville, Tenn	Feb., 1904	34	1	Fort Worth, Tex	....do	6	16
Little Rock, Ark	....do	25	1				

Table 4 shows the dates on which the average temperature of each entire district was below the normal for that district, and Table 5 shows when it was decidedly below, during the several months.

TABLE 4.—*Dates when the temperature was below the normal throughout each district.*

Districts.	December.	January.	February.
New England	1, 2, 4–6, 11, 14–19, 23, 26–31	1–6, 11, 17–20, 25–30	1–6, 8–21, 25–27
Middle Atlantic	1–4, 6–12, 14–19, 26–31	3–12, 14–20, 25, 27–31	1–5, 9–21, 25–27
South Atlantic	1–4, 6–12, 14–19, 21–23, 26–28, 30	3–8, 12, 14–16, 18–20, 24, 25, 27–31	1–4, 9–14, 16–18, 20, 21, 27, 28
Florida Peninsula	1–12, 15–18, 21–23, 26–28, 30–31	1, 5, 6, 8, 9, 14–16, 24, 25, 30	1–4, 12, 13, 15, 24, 25
East Gulf	1–11, 13–18, 21–23, 26, 27, 30, 31	3–7, 13, 14, 23–31	1–4, 10–13, 15–17, 20–23
West Gulf	1–7, 9–11, 13–17, 20, 26	3–5, 23, 26–31	1, 10–12, 18–22
Ohio Valley and Tennessee	1–18, 22, 23, 25–31	3, 7, 13–15, 17, 18, 23–31	1–4, 8–13, 15–22, 25
Lower Lake	1–11, 13–19, 22, 25–31	1–6, 10–12, 15, 17–19, 24–30	1–4, 8–13, 15–20, 24–26
Upper Lake	1, 2, 5, 6, 8–17, 22, 25–31	1–5, 17, 24–31	1–4, 7–12, 14–20, 22, 24–27
North Dakota	4, 8, 11–16	1–4, 20, 23–28	2–4, 6–11, 13–16, 21–26
Upper Mississippi Valley	1, 2, 4, 5, 8–17, 22, 25, 26, 28–30	2–4, 23–31	1–4, 8–12, 14–22, 25, 26
Missouri Valley	1, 4, 5, 8–17	2–4, 21–29, 31	2, 3, 7–11, 14–19, 21, 25, 26
Northern slope	4, 11–14	2, 20, 23–25	2, 7–10, 14, 25
Middle slope	4, 5, 8, 12–14	2–4, 21–23, 25–29, 31	8–10, 16–19, 21
Southern slope	4, 5, 8, 9, 13–16	2–4, 6, 22, 23, 25–31	9–11, 18, 19
Southern Plateau	4, 5	3, 5, 6, 21–23, 29, 30	6–10
Middle Plateau	4–10, 15, 24, 25	9, 20, 21, 23, 25–31	8–10
Northern Plateau	3–10, 26, 27	25	9
North Pacific	2–11, 24, 25	18, 19, 25, 29	7–9, 20, 23–29
Middle Pacific	5, 6, 10, 30	3, 18–21	2–13, 17, 20, 27–29
South Pacific	3, 11	18–22	5–9, 12, 27

The most general, and, as a rule, severest cold spell of the month of January, 1904, began in the Pacific districts on the 18th, and continued in the several geographic districts as follows: North Pacific over the 20th; middle and southern Pacific over the 22d; middle Plateau 20th to 31st, inclusive, except the 22d; northern Plateau 25th to 31st, inclusive, except the 27th; southern Plateau 20th to 31st, inclusive, except the 25th; northern and middle slope 20th to 31st, inclusive; southern slope 21st to 31st, inclusive, except the 24th; North Dakota 19th to 28th, inclusive; Missouri Valley 20th to 31st, inclusive; upper Mississippi Valley, and west Gulf 22d to 31st, inclusive; the Lake region, Ohio Valley, and Tennessee, and east Gulf 23d to 31st, inclusive; south Atlantic 24th to 31st, inclusive; middle Atlantic and New England 25th to 31st, inclusive; and 24th, 25th, 30th, and 31st in the Florida Peninsula.

Overlapping and following the cold spells of the first six or seven days of the month of February, 1904, there were apparently a number of cold areas, so rapidly succeeding each other as to merge one with another, covering a much greater area, of longer duration, and marked severity, being especially severe in most of the districts on and immediately after the 15th.

Over the north and middle Pacific and the northern, middle, and southern slope districts the temperature was below the normal on the majority of the days of this month, but the daily departures were as a rule slight, and averaged only —0.8°, —0.6°, and —0.1° in the northern and middle Pacific and northern slope districts; in the southern and middle slope districts the plus departures were so very decided as to overcome the minus departures, and create an excess averaging +4.2° in the middle slope, and +7.9° in the southern slope.

TABLE 5.—*Dates when the temperature was 10° or more below the normal throughout each district.*

Districts.	December.	January.	February.
New England	15–18, 26–29	2–5, 18, 19, 28	6, 9–12, 16–18, 25–27
Middle Atlantic	15, 16, 27	3–6, 18, 19, 28	4, 9–13, 16–20, 25, 26
South Atlantic	2, 3, 11, 27	4–6, 19, 28–31	1, 10–13, 17, 18, 20
Florida Peninsula	1, 3, 4, 7, 8	14, 15	2
East Gulf	1–3, 6, 7	3–5, 26–30	1, 11, 12
West Gulf	2, 13, 14	3, 4, 26–29	19–21
Ohio Valley and Tennessee	1–3, 6, 10, 11, 13–15, 17, 26, 30	3–5, 26–28	1, 3, 4, 8, 10–12, 15–17, 19, 20
Lower Lake	13–16, 26, 28–30	2–5, 17, 18, 25, 27, 28	1, 3, 4, 8–12, 15–20, 25, 26
Upper Lake	11–15, 25, 28	1–4, 24–31	1, 3, 4, 7–12, 15–19, 24–26
North Dakota	4, 11–15	3, 20, 23–28	3, 6–11, 14, 15, 21–26
Upper Mississippi Valley	5, 10–15, 17, 25, 26, 30	2–4, 23–29	1–4, 8–12, 15–19, 22, 25
Missouri Valley	1, 4, 5, 10, 12–15	2, 3, 23–29	7–11, 14–19
Northern slope	12–14	24, 25	7–10, 14, 25
Middle slope	13, 14	2, 3, 25, 26, 28	9, 10, 19
Southern slope	15	2, 3, 28	10
Southern Plateau	None	None	None.
Middle Plateau	None	None	9
Northern Plateau	None	None	None.
North Pacific	None	None	None.
Middle Pacific	None	None	None.
South Pacific	None	None	None.

RECENT PAPERS BEARING ON METEOROLOGY.

Dr. W. F. R. PHILLIPS, Librarian, etc.

The subjoined titles have 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. Unsigned articles are indicated by a ——.

Science. New York. New Series. Vol. 19.

Taylor, Robert S. Levees, Outlets and Reservoirs as Means for Protection against Overflow of the Alluvial Lands of the Mississippi Valley below Cairo. Pp. 601–609.

Scientific American Supplement. New York. Vol. 57.

Byers, Charles Alma. Our Flood Warning Service. P. 23651.

Astrophysical Journal. Chicago. Vol. 19.

Baly, E. C. C. The Spectrum of the Aurora. Pp. 187–189.

National Geographical Magazine. Washington. Vol. 15.

Page, James. The Sailing Ship and the Panama Canal. Pp. 167–176.

Journal of Geography. Chicago. Vol. 3.

F., N. M. An Interesting Atmospheric Phenomena. Pp. 185–186.

Geographical Journal. London. Vol. 23.

Murray, John and Pullar, Laurence. Bathymetrical Survey of the Fresh-Water Lochs of Scotland. Pp. 444–473.

Proceedings of the Royal Society. London. Vol. 73.

Chree, C. An Inquiry into the Nature of the Relationship between Sun-spot Frequency and Terrestrial Magnetism. Pp. 198–201.

Simpson, George C. Atmospherical Radio-Activity in High Latitudes. Pp. 209–216.

Nature. London. Vol. 69.

—— Frost Effects at Niagara. P. 499.

—— Relation between Temperature and Elevation. Pp. 500–501.

—— Imperial Meteorology. Pp. 537–538.

Symons's Meteorological Magazine. London. Vol. 39.

—— The Dawson-Lander Sunshine Recorder. Pp. 21–22.

Black, W. G. Observations of Rain and Dust and Evaporation, Edinburgh. 1903. P. 29.

Bulletin of the American Geographical Society. New York. Vol. 36.

Ward, R. DeC. Climate of Panama. Pp. 90-91.

Ward, R. DeC. Iceland Weather and the Weather of Northwestern Europe. Pp. 91-92.

Ward, R. DeC. Climate and the Cotton-Boll Weevil. Pp. 96-97.

Knowledge. London. New Series. Vol. 1.

Maunder, E. Walter. Is there Snow on the Moon ? A Study of the Lunar Appenines. Pp. 64-67.

Annuaire de la Société Météorologique de France. Paris. 52me année.

Maillet, Edmond. Résumé des observations centralisées par le Service Hydrométrique du Bassin de la Seine en 1902. Pp. 33-47.

Angot, A. Les observations météorologiques de la mission Saharienne Foureau-Lamy. Pp. 48-51.

Violle, J. Les appareils grêlifuges à l'Exposition de Nuits-Saint-Georges. Pp. 59-62.

Chassant, —. Le régime des pluies et des vents pluvieux à Montpellier. Pp. 62-66.

Dechevrens, —. Les variations de la température selon la verticale. Une seconde altitude limite. Pp. 67-74.

Maillet, E. Sur la crue de la Seine en février 1904. Pp. 79-81.

Dufour, Ch. Les orages à grêle dans le département de la Loire. [Review of work of Braemer.] Pp. 81-82.

Dufour, Ch. Les anomalies du temps en Islande, et leurs relations avec les anomalies simultanées dans le Nord-Ouest de l'Europe. [Review of memoir of Hann.] Pp. 83-85.

Cheux, A. Résumé des observations météorologiques faites pendant l'année 1903 à l'Observatoire de la Beaumette (près d'Angers). Pp. 85-86.

Dufour, Ch. Les variations de la pesanteur. Pp. 87-88.

Ciel et Terre. Bruxelles. 25me année.

—— Sur l'intensité de l'éclairement par le soleil. [Note on observations of Ch. Fabry.] Pp. 21-23.

—— Les pluies de chenilles. Pp. 23-24.

—— Sur la diminution de l'intensité du rayonnement solaire en 1902 et 1903. [Note.] Pp. 68-69.

—— Variations brusques de la température dans les environs du lac Baïkal. [Review of article of Woeikof,] P. 69-71.

L., V. D. L'eau déposée par les nuages au sommet de la Montagne de la Table (Colonie du Cap.) [Review of work of Marloth.] Pp. 71-72.

Annales de Géographie. Paris. 13me Année.

Mouchincourt, Ch. La Région de Tunis. [Climate.] Pp. 150-154.

Comptes Rendus de l'Académie des Sciences. Paris. Tome 138.

Forel, F. A. Le cercle de Bishop de 1902-1904. Pp. 688-690.

Archives Néerlandaises des Sciences Exactes et Naturelles. La Haye. Série II. Tome IX.

Waals, J. D. van der. L'état liquide et l'équation d'état. pp. 1-33.

Archives des Sciences Physiques et Naturelles. Genève. 4me Période. Tome 17.

—— Observations météorologiques faites aux fortifications de Saint-Maurice pendant les mois de juin, juillet et août 1903. Pp. 300-307.

Annalen der Hydrographie und Maritimen Meteorologie. Berlin. 32 Jahrgang.

Becke, v. d. Das Sturmwarnungswesen europäischer Staaten. Pp. 147-158.

Krebs, Wilhelm. Verzerrungsformen der aufgehenden Sonne. Pp. 158-161.

Das Weltall. Berlin. 4 Jahrgang.

Krebs, Wilhelm. Die Trübung der Hamburger Atmosphäre. Pp. 236-237.

Das Wetter. Berlin. 21 Jahrgang.

Ferle, Fr. F. Ueber ein Taumesserfahren. Pp. 49-52.

Schwalbe, E. Der Schneesturm vom 18. bis 20 April 1903 in Ostdeutschland. P. 52-67.

Illustrierte Aëronautische Mitteilungen. Strassburg. 8 Jahrgang.

Volkmann, Wilhelm. Ueber die Bedingungen, unter denen die Ortsveränderung eines Ballons elektrische Ladungen auf ihm hervorbringen kann. Pp. 121-130.

Berson, Arthur and Elias, Hermann. Drachenaufstiege auf der Ostsee, den Norwegischen Gewässern und dem Nördlichen Eismeere. P. 130-139.

Gaea. Leipzig. 14 Jahrgang.

—— Ein Kugelblitz im Walde. P. 310.

—— Radioaktive Emanation der festen Erdrinde. [Review of work of Elster and Geitel.] Pp. 310-311.

Meteorologische Zeitschrift. Wien. Band 21.

Woeikof, A. Temperatur der unteresten Luftschicht. Pp. 49-50.

Woeikof, A. Probleme der Bodentemperatur, Typen ihrer vertikalen Verbreitung, verhältnis zur Lufttemperatur. Pp. 50-62.
kalen Verhaltnis zur Lufttemperatur. Pp. 50-62.

Hann, J. Die Beobachtungs-Ergebnisse am meteorologischen Observatorium erster Ordnung zu Curityba, Staat Paraná, Brasilien. Pp. 62-72.

Lachmann, G. Die Schneedecke in Berlin. Pp. 72-77.

MacDowall, Alex. B. Temperatur und Sonnenflecken. Pp. 77-78.

—— Sonnenflecken und Erdmagnetismus, nach Chree. Pp. 78-79.

—— Regenfall und Sonnenflecken-Periode in Schottland. P. 79.

Exner, Felix M. Ueber eine Beziehung zwischen Luftdruckverteilung und Bewölkung. Pp. 79-80.

MacDowall, Alex. B. Mond und Luftdruck. P. 80.

MacDowall, Alex. B. Mond und Wetter. P. 81.

—— Die magnetische Störung am 31. Oktober 1903. P. 81.

Mazelle, Eduard. Erdbebenstörungen zu Triest, beobachtet am Rebeur-Ehlertschen Horizontalpendel im Jahre 1902. Pp. 81-82.

—— Zum Klima von Davos. P. 82.

—— Dr. Oskar Bock: Verdunstung an den forstlich-meteorologischen Stationen in Elsass-Lothringen. Pp. 82-83.

Klein, Robert. Ergebnisse 5 jähriger Föhnbeobachtungen in Tragöss. Pp. 83-84.

—— Klima von Heidelberg. Pp. 85-86.

H[ann], J[ulius]. G. Greim: Temperatur und Wasserführung eines Gletscherbaches im Paznaun in Tirol. Pp. 86-88.

Hann, J. Hundertjährige Temperaturmittel von Calw. Pp. 88-89.

—— Regenfall zu Santiago de Chile. P. 90.

Hann, J. Resultate der meteorologischen Beobachtungen auf dem Kodaikänal-Observatorium in Südindien im Jahre 1902. [Abstract] Pp. 90-91.

Hann, J. Klima von Minahassa, Celebes. [Abstract.] Pp. 91-93.

Hann, J. Höhenklima der Philippinen. [Abstract of Report of Algué.[Pp. 93-95.

—— Meteorologische Beobachtungen zu Neu-Freiburg (Brasilien) im Jahre 1900. P. 95.

—— Klima von Wei-Hai-Wei. Pp. 96-97.

—— Meteorologische Beobachtungen zu St. Lucia (Kleine Antillen.) P. 97.

H[ann], Julius. Witterung im Dezember 1903 und Januar 1904 in Wien. Pp. 97-98.

Sack, G. Beobachtungen über die Polarisation des Himmelslichtes zur Zeit der Dämmerung. Pp. 105-112.

Augustin, F. Der tägliche Gang der meteorologischen Elemente auf der Petrinwarte in Prag. Pp. 113-129.

—— Magnetische Deklination und Inklination auf den Philippinen. Pp. 135-136.

—— Die magnetischen Elemente von Tananariva. P. 136.

Stentzel, A. Selbstleuchtende Nachtwolken. Pp. 136-137.

Quervain, A. de. Zur Kenntnis de Wolkenformen. Pp. 137-138.

Börgen, C. Gewitter-Fernregistrierung. Pp. 138-139.

—— Observatorium auf dem Monte Rosa. P. 139.

—— Ausserordentlich heftige Stürme an der Pazifischen Küste im Mai 1902 und 1903. Pp. 139-140.

Uljanin, —. Die ersten Drachenaufstiege am Meteorologischen Observatorium der Universität Kasan. P. 140.

—— Täglicher Gang der meteorologischen Elemente auf Franz Josefs-Land, Teplitz-Bai 81° 47′ N. Br. P. 141.

Rizzo: Die tägliche Drehung des Windes auf Franz Josefs-Land. Pp. 141-142.

—— Resultate der meteorologischen Beobachtungen in Swakopmund (deutsch-Südwestafrika) im Jahre 1902. Pp. 141-142.

—— Regenmessungen in Togo. Pp. 143-146.

—— Resultate der meteorologischen Beobachtungen in Deutsch-Südwestafrika für das Jahr Juli 1901-Juni 1902. P. 146-149.

—— Wintergewitter in Nieder-Oesterreich und Mähren. P. 149.

Memorias y Revista de la Sociedad Cientifica Antonio Alzate." Tome 20.

Escobar, Romulo. Les pluies au Mexique. P. 4-57.

Memorie della Società degli Spettroscopisti Italiani. Catania. Vol. 33.

Bemporad, A. La teoria della estinzione atmosferica nella ipotesi di un decrescimento uniforme della temperatura dell' aria coll' altezza. Pp. 31-37.

NOTES AND EXTRACTS.

EDITORIAL REVISION.

The authors whose papers appear in the MONTHLY WEATHER REVIEW will sometimes observe that changes have been made in their phraseology, sentences have been omitted, textual matter converted into tabular matter, explanatory notes added by the Editor, etc. As these changes have been made in good faith and under the conviction that they avoid introducing problematic questions, make the text of the article clearer, and increase its value to the readers of the REVIEW, therefore the Editor hopes they will not be taken amiss, and that his changes will not be considered as a case of officious meddling. No one can have the interests of the REVIEW more thoroughly at heart