on nineteen years, in Quebec on eighteen, and in the Maritime Provinces on seventeen years; consequently, March appears to be more likely to go out like a lion than a lamb. As to the idea that if March comes in rough it will go out quietly, or vice versa, there is nothing in the records to justify this assumption, for during the past thirty years these conditions were maintained in twelve years only, in Ontario and Quebec, and in eleven in the Maritime Provinces. With such a long series of records opposed to the generally conceived notions of the dreaded conditions to be anticipated in March, it must be allowed that the supposed eccentricities of the weather of the month are largely illusory.

Many of the old sayings and proverbs regarding the weather and its changes have been handed down in Canada from generation of descendants chiefly from the British Isles, and these legends if applicable to the weather conditions of those Islands, which is very doubtful, are not so to a continental climate such as we enjoy.

Ontario, Quebec, and the Maritime Provinces have only been treated of in this paper because similar records of the winds, etc., are not available for the remaining parts of Canada, however, there can be no apparent reason why the same sequence of changes experienced over the districts reviewed should not occur elsewhere in the Dominion and in fact throughout the northern temperate zone generally; i. e., a marked decrease in stormy weather as the season advances toward the spring and summer.

## CLIMATOLOGY OF COSTA RICA.

Communicated by H. PITTIER, Director, Physical Geographic Institute.

[For tables see the last page of this REVIEW preceding the charts.]

*Notes on the weather.*—On the Pacific slope the drought was excessive and continuous, but for a few light squalls of rain during the 27th, 28th, and 29th. In San José the pressure was slightly above the normal, while the heat and relative humidity were less. The sunshine records show an excess of about thirty-two hours above the general mean. On the Atlantic slope the rainfall was almost everywhere in excess of previous years, except on the coast belt where the drought was rather marked, and provoked, in Port Limon and its surroundings, a spell of bad fevers and general diseases.

*Notes on earthquakes.*—March 2, $6^h$ $47^m$ p. m., slight shock NW-SE, intensity I, duration 3 seconds. March 12, $2^h$ $25^m$ a. m., pretty generally felt shock N-S, intensity II, duration 4 seconds. March 21, $4^h$ $40^m$ a. m., prolonged vibration E-W, intensity II, duration 15 seconds. March 30, $5^h$ $33^m$ a. m., long oscillatory movement WNW-ESE, intensity III, duration 30 seconds. The same earthquake was officially reported from Cachi and San Isidro de Alajuela and was generally felt all through the interior of the country.

## RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, 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. London. N. S. Vol. 17.*
**Bolton, Henry Carrington.** Origin of the word "Barometer." Pp. 547-548.
**Ward, R. DeC.** Bigelow's Barometry. [Note on report by F. H. Bigelow.] Pp. 595-596.
**Ward, R. DeC.** Meteorological Observations in Bosnia. [Note on article by Hann.] P. 596.
**Ward, R. DeC.** High Winds on the Pacific Coast. [Note on article in Annual Report of the California Climate and Crops.] P. 596.

*Scientific American. New York. Vol. 88.*
**Crookes, William.** Sir William Crookes on Radium. P. 311.

*Scientific American Supplement. New York. Vol. 55.*
—— The New Observation Kites invented by S. F. Cody. P. 22804.
—— Kites as Meteorological Instruments. P. 22823.

*Proceedings of the Royal Society. London. Vol. 49.*
**Lockyer, Norman and Lockyer, William J. S.** Relation between Solar Prominences and Terrestrial Magnetism. Pp. 244-250.
**Russell, W. J.** On the formation of Definite Figures by the Deposition of Dust. Pp. 285-287.

*Aeronautical Journal. London. Vol. 7.*
**Anderson, John.** The Kite Equipment of the Scottish National Antarctic Expedition. Pp. 25-28.
**Alexander, Patrick Y.** The Aërosac. P. 28.
**Blackden, L. S.** Observations and Experiments relative to Equilibrium in Air of a Body Heavier than Air. Pp. 28-40.

*Symons's Meteorological Magazine. London. Vol. 38.*
—— Great Dustfall of February, 1903. Pp. 21-24.
**Stupart, R. F.** Canadian Climate. Pp. 31-33.

*American Journal of Science. New Haven. 4th series. Vol. 15.*
**Trowbridge, J.** Gaseous Constitution of the H and K lines of the Solar Spectrum, together with a discussion of reversed gaseous lines. Pp. 243-248.

*Physical Review. Lancaster. Vol. 16.*
**Barus, C.** The Nucleation during Cold Weather. Pp. 193-198.

*Scottish Geographical Magazine. Edinburg. Vol. 19.*
**Mossman, R. C.** Meteorological Notes. Pp. 180-183.

*Nature. London. Vol. 67.*
**Rosse, Lord.** Effects of the Gale of February 26. P. 462.
**Windsor, E. V.** Hygrometric Determinations. Pp. 463-464.
**Harding, Chas.** Remarkable Winters. Pp. 466-467.
**S., F. J. J.** Movement of Air studied by Chronophotography. Pp. 487-488.
—— Accumulation of Meteorological Observations. Pp. 497-498.
—— Lodge, Oliver. Radium Emission. P. 511.
**Rutherford, E.** Radio-Activity of Ordinary Materials. Pp. 511-512.
**Crookes, William.** Emanations of Radium. Pp. 522-524.
**Milne, J.** Seismometry and Gëite. Pp. 538-539.
—— Variation of Solar Radiation received on the Earth's Surface. [Note on article by Henri Dufour.] P. 545.
**Russell, W. J.** Formation of Definite Figures by the Deposition of Dust. Pp. 545-546.
—— London Fog Inquiry, 1901-02. Pp. 548-549.

*Comptes Rendus de l'Académie des Sciences. Paris. Tome 136.*
**Curie, P. and Laborde, A.** Sur la chaleur dégagée spontanément par les sels de radium. Pp, 673-675.
**Chauveau, A. B.** Sur les poussières éoliennes du 22 février. Pp. 776-777.
**Mascart, E.** Remarques sur la note précédente. Pp. 777-778.
**Pellat, H.** De la température absolue déduite du thermomètre normal. Pp. 809-811.
**Fonvielle, W. de.** Hypothèse de J. B. Biot pour expliquer la hauteur de l'atmosphère. P. 835-837.

*Ciel et Terre. Bruxelles. 24me année.*
**Prinz, W.** Analyse de la boue tombée en Belgique le 22 février 1903. Pp. 25-31.
**L., V. D.** Les vents dominants indiqués par les arbres. [Note on article by J. Früh.] P. 41-42.
**Van der Linden, E.** La pluie de poussière des 21 et 22 février 1903. Pp. 49-55.
**Chauveau, A. B.** Historique des théories relatives à l'origine de l'électricité atmosphérique. Pp. 59-70.

*Annuaire de la Société Météorologique de France. Paris. 51me année.*
**Maillet, Edmond.** Résumé des observations centralisées par le Service Hydrométrique du bassin de la Seine, pendant l'année 1901. Pp. 21-28.
**Besson, Louis.** Un nouveau néphoscope. Pp. 29-31.
**Raulin, V. M.** Sur les observations pluviométriques faites dans l'Asie centrale Russe. Pp. 37-42.

*La Géographie. Paris. Vol. 7.*
**Bénard, Charles.** Les courants de l'Atlantique Nord et du golfe de Gascogne. Pp. 1-18.

*Journal de Physique. Paris. 4me séries. Tome 2.*
**Mathias, E.** Théorie des phénomènes critiques et la vaporisation. Contribution à la théorie des dissolutions. [Note on article by J. Traube.] Pp. 206-211.

*Annalen der Physik. Leipzig. Vierte Folge. Band 10.*
**Toepler, Max.** Ueber Funkenlängen und Anfangsspannungen in Luft von Atmosphärendruck. Pp. 730-747.

**Olszewski, K.** Apparate zur Verflüssigung von Luft und Wasserstoff. Pp. 768-782.
**Richarz, F.** Temperatur differenzen in künstlich erzeugten auf und absteigenden Luftströmen nach Messungen von Hrn. S. Löwenherz. Pp. 863-879.

*Gaea. Leipzig. 39 Jahrg.*
—— Ueber Methoden der Forschung in der Meteorologie. Pp. 279-285.

*Annalen der Hydrographie und Maritimen Meteorologie. Hamburg. 31 Jahrgang.*
**Kassner, K.** Sonnenflecken, Depressionen der Zugstrasse Vb und Niederschläge. Pp. 101-104.

*Das Wetter. Berlin. 20 Jahrgang.*
—— Erklärung der in den Witterungsberichten und Witterungsaussichten der Seewarte angewandten Ausdrücke. Pp. 49-56.
**Frenbe, —.** Ein landwirtschaftlicher Wetterdienst. Pp. 56-63.
**Meinardus, W.** Zur Erläuterung. P. 65.

*Geographische Zeitschrift. Leipzig. 9 Jahrgang.*
**Maurer, Hans.** Eine klimatologische Studie. Pp. 80-90; 140-149.

*Zeitschrift für Gewässerkunde. Leipzig. 5 Band.*
**Wojeikow, A. J.** Der jährliche Wärmeaustausch in den nordeuropäischen Seen. Pp. 193-199.
**Crugnola, Gaetano.** Zur Dynamik des Flussbetts. Pp. 241-251.

*Illustrirte Aeronautische Mittheilungen. Strassburg. 7 Jahrgang.*
**Moedebeck, H. W. L.** Die Luftschiffahrt in Japan. Pp. 101-108.
**Stauber, —.** Eine Hochfahrt des Wiener Aëro-Clubs. Pp. 109-116.

*Meteorologische Zeitschrift. Wien. Band 20.*
**Woeikof, A.** Probleme des Wärmehaushaltes des Erdballs. Pp. 49-54.
**Woeikof, A.** Die Resultate der Karaboghaz-Expedition. Pp. 54-57.
**Woeikof, A.** Die Isothermen im westlichen tropischen Südamerika. Pp. 57-58.
**Hegyfoky, J.** Die Frühlingsankunft der Wandervögel und die Witterung in Ungarn. Pp. 58-64.
**Grimaldi, G. T.** Der Wolkenbruch vom September 1902 in Sizilien und die Ueberschwemmung von Modica. Pp. 64-67.
—— Elektrische Erscheinungen beim Ausbruch des Soufrière auf S. Vincent am 3 und 4 September 1902. Pp. 67-68.
—— Resultate der Beobachtungen auf dem Kodaikanal-Observatorium in Südindien im Jahre 1901. P. 68-69.
**Hann, J.** Vierzigjährige Temperaturmittel für Malta. Pp. 69-71.
**Hann, J.** Zum Klima von Malta. Pp. 71-75.
**Hann, J.** Zur Meteorologie des Innern von Südafrika. Pp. 75-79.
**Ernst, M.** Selbstleuchtende Wolken. Pp. 79-80.
**Hergesell, —.** Vorläufiger Bericht über die internationale Ballonfahrt vom 2 Oktober 1902. Pp. 80-81.
**Hergesell, —.** Vorläufiger Bericht über die internationale Ballonfahrt vom 6 November 1902. Pp. 81-82.
**Hergesell, —.** Vorläufiger Bericht über die internationale Ballonfahrt vom 4 Dezember 1902. Pp. 82-83.
—— Wärme und Höhenrauch im Februar. P. 83.
—— Staubregen. P. 83-84.
**Trabert, W.** NW-Föhn in Innsbruck. P. 84-85.
**Kassner, C.** Die Niederschläge zu Belgrad (Serbien). Pp. 85-87.
**MacDowall, Alex. B.** Der Regenfall im Frühjahr und Herbst. P. 87.
—— Nordlichtbeobachtungen. Pp. 87-88.
**MacDowall, Alex. B.** Retardation von Perioden. P. 88.
**Lockyer, N. and Lockyer, W. J. S.** Ueber die Aehnlichkeit kurzperiodischer Luftdurckänderungen über grossen Gebieten. Pp. 88-90.
**Wilson, Alfred W. G.** Aussergewöhnlicher Hagelfall. Pp. 90-91.
**Messerschmitt, J. B.** Ueber das Erdbeben vom 26 November 1902. Pp. 91-92.
**Fischer, L.** Orkan bei Barzdorf. P. 92.
**Ischirkoff, A.** Zum Klima von Sofia. I. Einige Notizen über die Lufttemperatur von Sofia. Pp. 97-100.
**Kassner, C.** II. Ueber den täglichen Gang der Temperatur zu Sofia. Pp. 100-103.
**Ischirkoff, A. and Kassner, C.** III. 10 jährige Mittel von Sofia. Pp. 103-107.
**Ebert, Hermann.** Die atmosphärische Elektrizität auf Grund der Elektronentheorie. Pp. 107-114.
**Martin, C.** Zum Klima von Südchile, Llanquihue und Chiloé. Pp. 114-122.
**Hann, J.** Die Zusammensetzung der Atmosphäre. P. 122-126.
**Prohaska, K.** Hagelfälle im Sommer 1902 in Steiermark. Pp. 126-130.
**Woeikoff, A.** Frühling nach sehr warmem Februar. P. 130.
—— Staubfall am 22 Februar. P. 131.
—— Staubfall in England. P. 131.
—— Höhenrauch und Staubregen am 21 und 22 Februar 1903. Pp. 131-133.
**H[ann], J[ulius].** Ueber die Ursache des Staubfalles vom 21 und 22 Februar. P. 133.
**Hellmann, G.** Die Staubfall vom 21 bis 23 Februar 1903. Pp. 133-135.
**Egnell, A.** Die Aenderung der Windgeschwindigkeit mit der Höhe. Pp. 135-137.
**Kesslitz, W.** Resultate der meteorologischen Beobachtungen zu Pola 1867-1900. Pp. 137-141.
**H[ann], J[ulius].** Klima von Hebron. Pp. 141-142.

*Hemel en Dampkring. Amsterdam. April 1903.*
**Mars, S.** Methoden van onderzoek in de meteorologie. Pp. 115-118.
**Monné, A. J.** Vermoedelijke oorzaak der fouten bij de aflezingen van minimum-temperaturen der lucht. Pp. 107-114.

# NOTES AND EXTRACTS.

## SECOND RUSSIAN CONGRESS ON CLIMATOLOGY.

A letter from General Rykatcheff, director of the Nicolas Central Physical Observatory at St. Petersburg, announces that the second Russian congress on climatology, hydrology, and balnealogy, in commemoration of Peter the Great, will meet this year, from September 14 to 20 (new style), at Piatigorsk (German, Pjatigorsk). This place is north of the Caucasus Mountains and about 1400 meters or about 4500 feet above sea level; it is a little to the south of the main line of railroad leading to the Russian port of Petrovsk, on the Caspian Sea, and is about 90 kilometers northwest from the summit of Elbrus, whose altitude is 5631 meters, or over 18,000 feet, and whose snow-clad summit can ordinarily be seen. Its latitude is 44° north, longitude 43° 30′ east. General Rykatcheff gives the following interesting information:

One section of this congress will be devoted to climatology. The program for this section will consist of the following questions:

1. Comparison of the climates of different Russian climatological stations with those of corresponding stations in foreign countries.
2. Climates of mountains.
3. Influence of forests on climate.
4. Changes of climate caused by the works of man.
5. Comparison of the climate of a city with that of its suburbs.
6. Determination of the quantity of dust and of the number of microbes in the air of different localities and at different altitudes.
7. Isolation at different altitudes.
8. Organization of meteorological stations at watering places and climatic stations.

Various questions relative to climato-therapy will also be discussed.

It is desired to make the members of the congress acquainted with the works of Russian and also of foreign scientists relative to these questions. I therefore take the liberty of requesting you to communicate with the managers of watering places and climatic stations in your country and to suggest to them that they send descriptions of the places under their management and the works of climatology relative thereto. These publications will have a particular interest to members of the congress in view of the fact that watering places are much frequented by our countrymen. If any person should desire to present a note relative to questions on the program, in French, German, or English, it will be gratefully received.

You are requested to address letters and publications to the Nicolas Central Physical Observatory at St. Petersburg, "for the Congress of Climatology."

## WEATHER CYCLES AND FARMERS' ALMANACS.

A correspondent writes from Ruxton, Md., as follows:

The fact has come under my observation that a great many, especially among farmers and country people, place a good deal of confidence in the predictions of these so-called "weather prophets," whose vivid imaginations are portrayed in the pages of nearly all cheap almanacs.

It is true that a few prognosticators appear to base their forecasts on astronomical phenomena. If there is any question at all as to whether their researches might be an aid to the science of meteorology, it would not seem best to interfere.

It does not seem right, however, that these "weather prophets" should be allowed to publish such worthless predictions, which are not only in direct opposition to the work of the Weather Bureau, but by their widespread circulation through the country prove an actual injury to the less intelligent masses of our population. They are harmful to the farmer, because he depends in his business on weather forecasts which only by mere chance may come true, while the people in general are kept in ignorance and superstition, contrary to the advancement of an enlightened age.

In the vicinity of a large city, where the daily newspapers and fore-