

such events will occur. In like manner, though past experience may enable us in hot climates to predict the general character of the weather in any season of the year, still it does not give such precise information as will enable us to foretell that it will rain at any particular hour of a certain day during the rainy season, though we may be able to predict with certainty that, at that season of the year, the general character of the weather will be wet.

As we recede beyond the tropics, the periodic returns of certain kinds of weather are less regular and less to be depended upon. Notwithstanding, in all climates, there is more or less similarity in the kind of weather that occurs at certain seasons, and in certain climates, and in particular times of the year, periodic returns of the same description of weather are more regular than others. In all climates, therefore, but especially within the tropics, and also in all inland countries in temperate and high latitudes, *past experience carefully averaged for a succession of years*, is the best means of foretelling the weather, and that from which the longest foreknowledge may be derived.

II.—BAROMETRICAL PROGNOSTICATION.

The following are the principal rules whereby the weather may be foretold, with more or less probability of being correct, by means of the barometer.

1st. A high, steady state of the barometer indicates dry, calm, clear weather; being usually attended with great heat in summer and hard frost in winter. On the contrary, when it falls much and rapidly, it seldom remains long without rising. Hence such rapid variations in height indicate very changeable weather, such as one day wet and windy, and another dry and calm. The day when the barometer sinks rapidly being usually cloudy, wet and windy; the day when it rises rapidly, being usually clear, dry and calm.

2nd. When the barometer rises very rapidly to a considerable height, it seldom remains long without falling; and, on the contrary, when it falls much rapidly, it seldom remains long without rising. Hence such rapid variations in height indicate very changeable weather, such as one day wet and windy, and another dry and calm. The day the barometer sinks rapidly being usually cloudy, wet and windy; the day it rises rapidly being usually clear, dry and calm.

3rd. The barometer usually sinks lowest and with greatest rapidity immediately previous to and during the continuance of very high winds, and it continues to sink so long as the velocity of the wind is increasing; but it begins always to rise, and that generally with considerable rapidity, a short time before the wind abates.

4th. When the barometer rises very slowly and steadily, it indicates that it will continue high and without much fluctuation for a length of time. Hence it foretells a continuance of calm, dry weather.

5th. The barometer usually rises slightly when the wind changes from a warm to a cold direction; and, on the contrary, sinks when it changes from a cold to a warm direction. Thus when the wind shifts from southwest to northeast during winter, it usually rises, and generally begins to do so before the change of wind actually takes place; but when it shifts from northeast to southwest during the same season of the year, it usually falls. The former of these changes commonly produces dry weather; the latter, rain.

6th. A long continuance of a high state of the barometer is usually followed by a corresponding long continuance of a low state and the contrary. Hence

the former of these barometrical conditions, which is usually attended with calm, dry weather, prognosticates a continuance of wet and somewhat windy weather, so soon as the change takes place. And on the other hand the latter of these conditions prognosticates a continuance of dry, calm weather, until the change of weather has taken place.

The preceding rules show the great utility of a barometer at sea, in order to foretell the propriety of taking in sail, or the contrary, especially upon the approach or during the continuance of night, when other signs of wind cannot be so well observed. Indeed so useful is this instrument for the above purposes, that no vessel ought to be allowed to sail in temperate latitudes, where the barometer indications are stringent, without one. How the sinkings, and risings, and different heights of the barometer prognosticate wet and dry weather according to the preceding rules, has been conceived to be of difficult explanation. The chief reason, however, appears to be, that windy and calm weather, and also to a certain extent the direction of the wind, upon which wet and dry weather so much depend, may be thereby with more or less certainty, prognosticated.

(To be continued.)

VALUE OF PAST WEATHER RECORDS.

We have repeatedly recommended the systematic keeping of weather notes. A few notes written each evening in a book kept for the purpose, will in course of time form a volume of most valuable items, that may one day be largely drawn from by some writer on the climatology of our country. If we do not keep in mind the weather of past years we enter each month of the year in perfect ignorance of how it is likely to act, and are unprepared for what we might, at any rate, have to a certain extent anticipated.

One of the first points or duties attended to, each day at our office, is the clipping from the daily papers of every section of Canada and the United States, items bearing upon the weather. These clippings are then sorted and arranged in a series of books under the headings of "Storms," "Cold dips," "Snow-falls," "Rains," "Floods," and so forth. By noon of each day an abstract is written up in another book, kept for the purpose, which shows at a glance the weather of the past 24 or 48 hours over a very large portion not only of North America, but also Great Britain and Europe. The temperatures are next attended to along with the barometric readings of as many centres as reports have been received from, and these are then mapped as time permits.

Basing, as I do, my whole system of forecasting the weather upon what has been experienced in the past, the value of these volumes of clippings will be readily understood by all. Is the weather of a certain year markedly repeating itself? Then, if so, seven times out of nine, what happened before, happens again in the majority of sections. Of course, many will be inclined to question this fact, but to all such I have only one reply to make, namely, that *this has been the case in the past*, as can be abundantly proved, and we have no grounds for believing that the laws regulating the general weather year by year have undergone any change. An example or illustration, here, of this singular and most interesting fact will perhaps render it clearer to some of our readers.

We have entered a certain period wherein the weather generally is acting almost precisely as it did in the year—. We continue to observe this until we are so struck by the similarity between the two periods before us, that we gather sufficient bold-

ness (or confidence) to venture a detailed prediction. We now go over most carefully our full record of that past year and compare it date by date with what are at present the marked features of the weather generally. All (with minor irregularities, perhaps) agree, so far. Now, just ten days ahead of us and upon dates enumerated in those back records, looms up:—"Great gales around New York and other seaboard cities. Gales on the British coast, with snow-falls in England and Scotland." We give the warning. It is telegraphed everywhere and published in the daily newspapers of the country. Why is this warning listened to, and why thus flashed by wire from station to station? Why, rather, not ridiculed and put aside as a silly sensational announcement? Simply because a remembrance exists of other and similar predictions which "hit their mark," not *once* only, but twice, thrice and repeatedly. And the storm comes. Perhaps one, perhaps two or three dates out, but it arrives. The telegraphic reports refer to the storms in all directions and in the sections particularly named in the prediction. Then comes a quiet cable despatch, perhaps, only noticed by the few, but weighty in its bearing upon the "weather question." "Snow fell to-day in the Midland counties of England and in Scotland." The people say, "another pretty good guess," while we record another verification of a prediction based upon a correctly chosen period of recurrence in the weather, by means of which general warning was given several days in advance of our weather departments.

The sum total then of the foregoing simply amounts to this, namely, that as the weather has acted in the past, so will it continue to act in the future. Periods of weather, similar in nearly every respect to past periods, will continue to recur. These will not come around in regular cycles of time, but irregularly and unexpectedly. When, however, one such is on hand, we pretend to be amongst the first to observe and to make use of it.

There are other sub-divisions of this subject which we will again return to; such as the relationship of widely separated weather disturbances or conditions in these recurring periods, and that most puzzling of all features connected with our working—the "branching off" or bi-furcating of these recurring periods.—ED. BULL.

AN UNUSUALLY WARM MARCH.—The weather for the present month up to the 17th inst., has been unusually warm for this time of the year. This fact has, of course, been apparent to or felt by everyone, and the statement is only made as an introduction to the following statistics concerning the mean temperature, as observed at the Meteorological office. The mean temperature of March, 1881, was 30.12° or 0.96 above the average; while up to the 17th of that month it was 29.9°. The mean temperature of March up to the 17th inst., in the present year, is 31.4°, or 1.5 warmer than during the same period in 1881. The warmest day of March, 1881, was the 17th, when the temperature reached 36.52°, and the warmest day of the present month, so far as reached, was the 1st inst., when the temperature registered 42.83°. The highest temperature reached during March, 1881, was 42°, a figure recorded on two occasions during the month, viz, on the 9th and 14th. This has been exceeded five times during the present March, viz, on the 1st, 2nd, 3rd, 4th, 6th and 19th insts, when 50.1°, 47.3°, 42.7°, 44.1°, 43.5°, 47.1°, respectively, were registered. The average rainfall for March, is 1.601. The average rainfall for March, 1881, was 1.870, and for March, 1882, 1.025. The average snowfall for March, 1881, was 18.0 and for March, 1882, 3.7. Eight inches of snow fell during the 4th March 1881.—Toronto.