

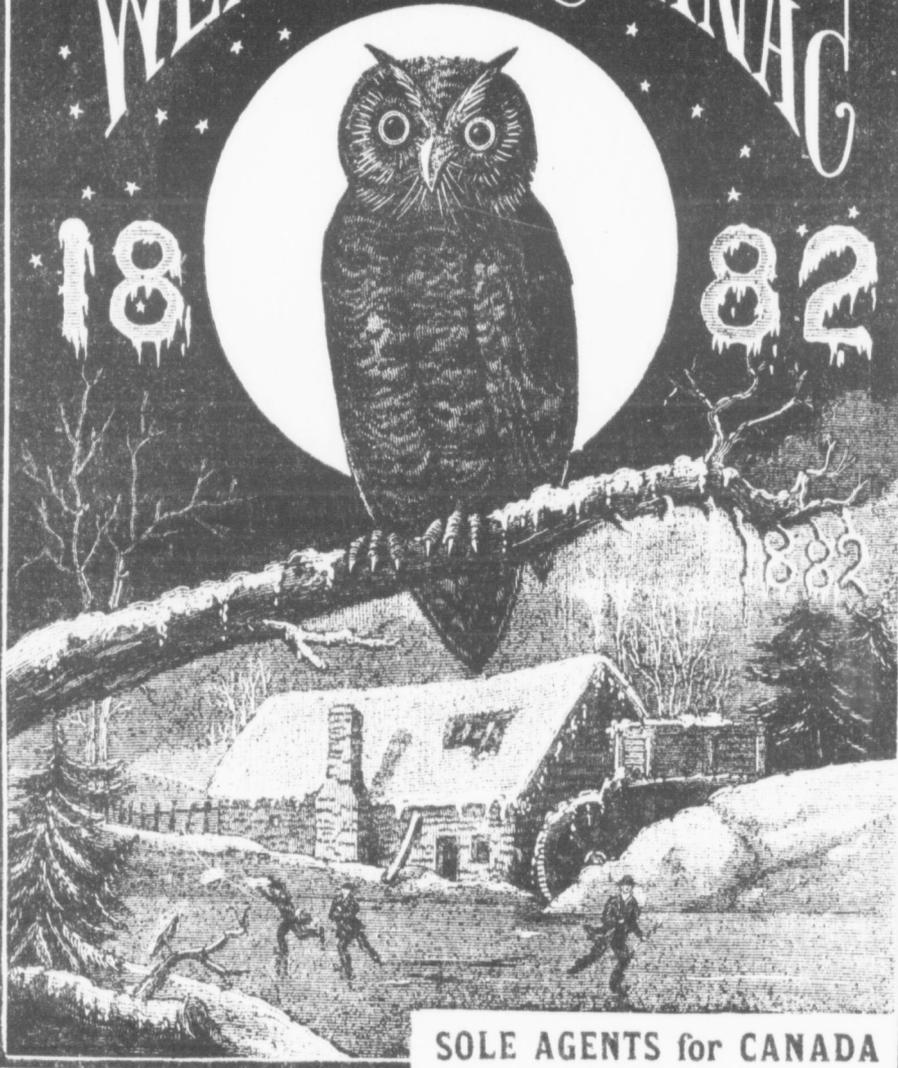
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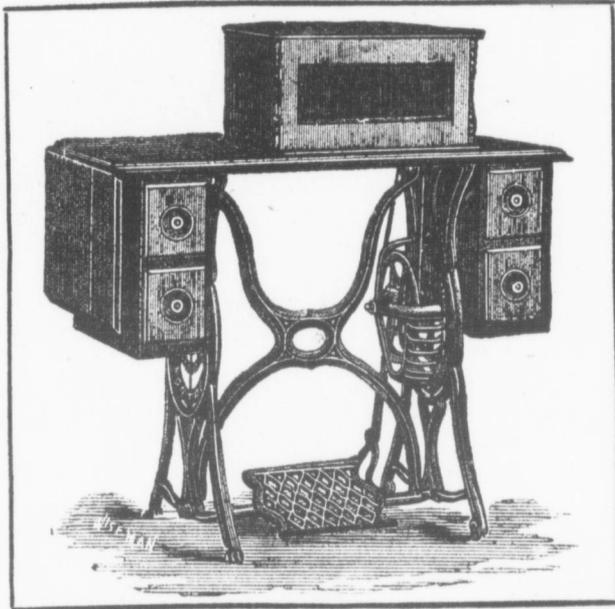
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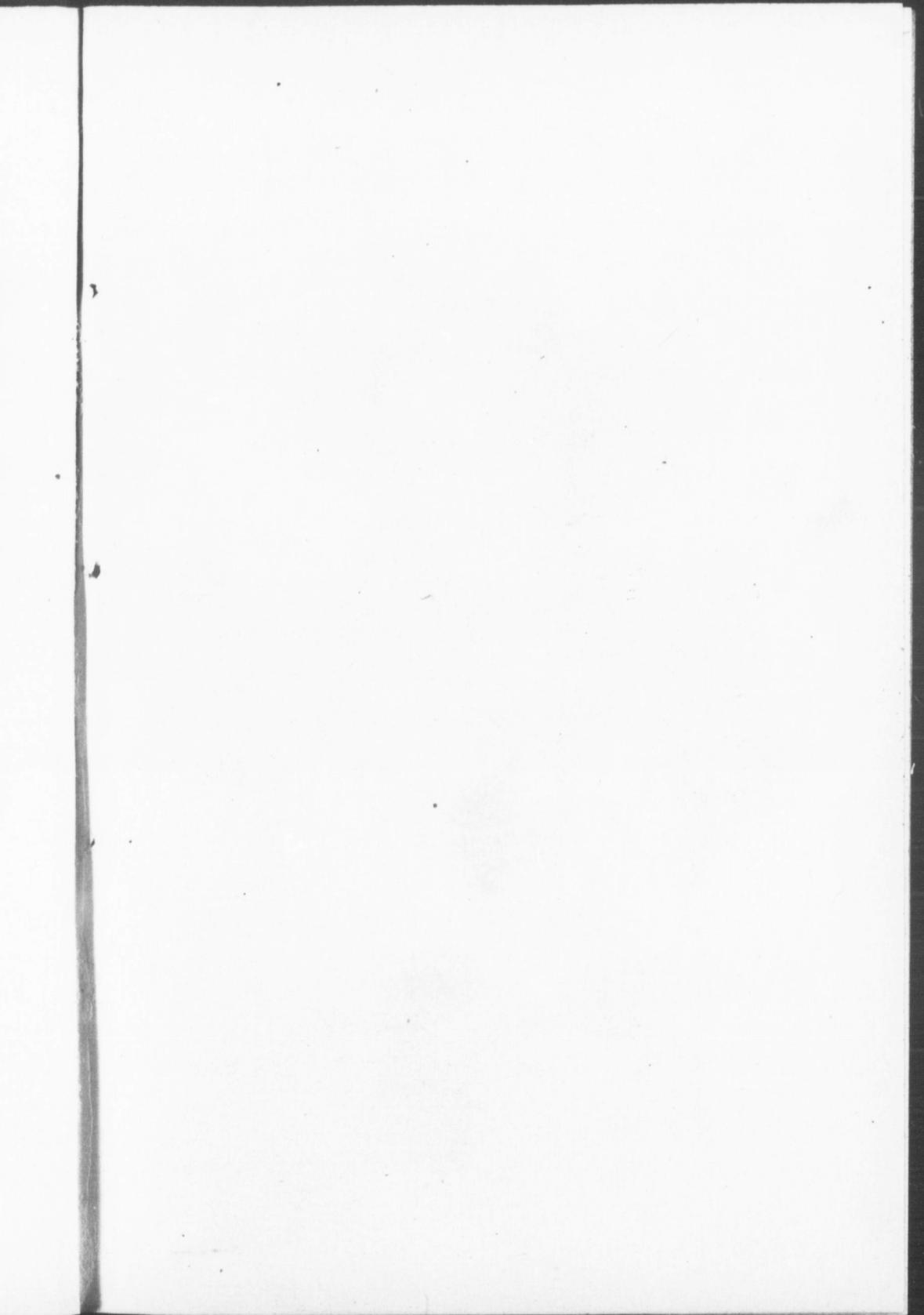
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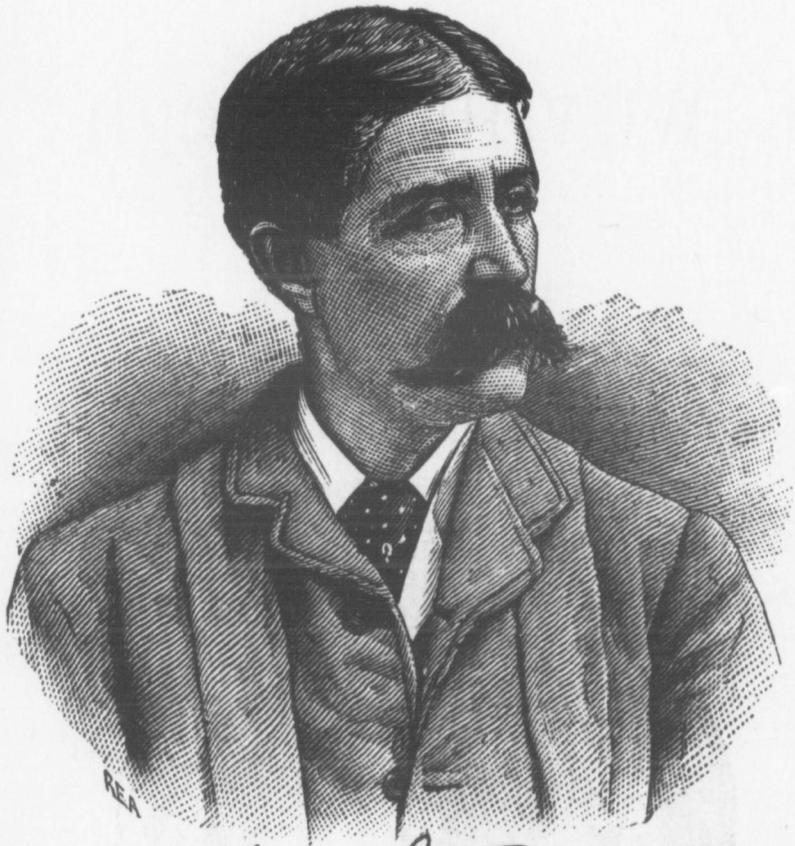
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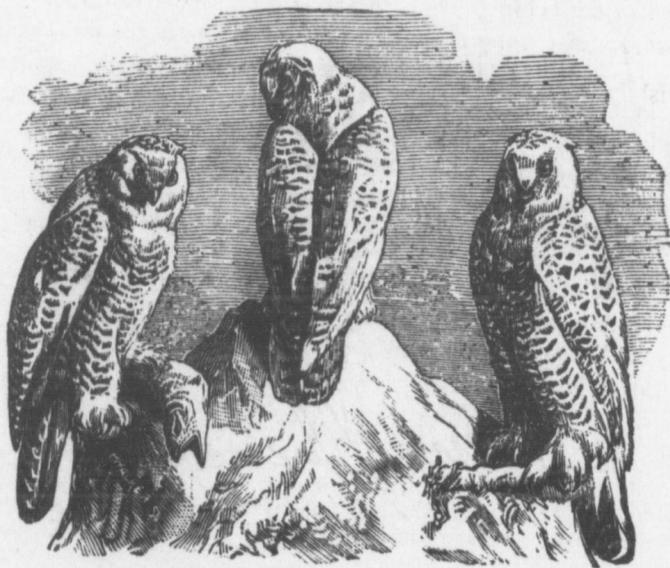
AND

WEATHER-RECORD

FOR

1882.

BY HENRY G. VENNOR, F.G.S.



Registered in accordance with the Act of Parliament, in the year one thousand
eight hundred and eighty-one, by HENRY G. VENNOR, in the
Office of the Minister of Agriculture, at Ottawa.

MONTREAL PRINTING Co., (*Limited*) Printers and Engravers, 245 St. James St.

PUBLISHERS' REMARKS.

IN the issue of VENNOR'S ALMANAC for 1882 we feel that we are meeting the wishes and requirements of many thousands who take a deep and lively interest in the matter of Weather-Predictions, by furnishing a work giving a full and careful analysis of a subject which has assumed vast proportions and grown to be one of international interest.

In securing the services of Professor HENRY G. VENNOR we have been particularly fortunate, being thereby enabled to present the work of a writer in whom the people have learned to place great confidence, and whose former predictions have been verified to a marvellous degree.

Heretofore, Professor Vennor's predictions have been confined to comparatively limited territory; we would, therefore, call the reader's attention to the boldness of these extraordinary prognostications, which cover an area of country embracing the United States and the Dominion of Canada, and give in addition a general outline of the approaching winter in Great Britain. It will be observed that the forecasts are calculated for *nearly a year in advance!*

That these prognostications will prove a severe test of the accuracy of Professor Vennor's theory is admitted, yet we are willing to submit them with faith in their reliability.

NOTE.--In reply to the many requests for photographs and autographs of the author, which, for obvious reasons, it has been impossible to comply with, we have inserted a portrait and fac-simile autograph.

FOR LIST OF CONTENTS, SEE PAGE 95.

INTRODUCTION.

THIS, though the fifth yearly volume of the Almanac, is the first that has been prepared with especial reference to the United States. That it should have become necessary, in order to satisfy the demands of the public, for its predictions to embrace the northern half of the Western Hemisphere, instead of, as previously, confining them to a comparatively small section of the Dominion of Canada, is sufficient evidence that the endeavor to forecast the seasons has been successful in some degree.

An intelligent foreknowledge of the seasons is equivalent to an enormous saving in the resources of any country, permitting the land to be treated so as always to bring forth the crops appropriate to the season in abundance, and doing away with the present great danger of sowing in waste. Through its aid the world's great problem, growing more difficult of solution every year—how to provide for its inhabitants—would be simplified very much, and a key afforded to the most embarrassing political problems of the age.

In my correspondence I notice with much satisfaction and encouragement numerous acknowledgments of direct benefits received from forecasts published in my Almanac and elsewhere. These, coming as they do from leading shippers, representative business-men, and editors and publishers of many of the most important newspapers of the continent, as well as from private individuals throughout the country, are speaking evidences of the value of these predictions, while, at the same time, they foreshadow the great good that in the future may be expected from an intelligent knowledge of forthcoming seasons.

With such encouragement, then, I continue my humble attempts to predict the character of the seasons with a much lighter heart than heretofore, feeling assured that I am not singular in my estimation of the work, and that I may look for encouragement, assistance, and support to many of the leading men of the country, and, more encouraging still, to the people as a whole. That all misrepresentation has been silenced and all opposition overcome I do not believe, and evil would be the day when meteorological investigations should be considered of such little importance as to be counted unworthy of opposition.

I cannot conclude this brief preface without, in justice to myself, repeating in effect what I always have endeavored to make plain to my readers: I lay no claim to the discovery of an infallible system of foretelling weather. The science of practical meteorology is yet in its infancy, and is being studied by many men whose abilities are far greater than any I could endeavor to lay claim to. There will be many mistakes before a right understanding or interpretation of its principles is arrived at. Based, as any system of predictions must be, on records of weather as yet incomplete and very faulty, the results cannot be entirely satisfactory, more especially in respect to new ground; yet I believe the key to the solution of the problem has been found, and that all errors will but aid in more correctly discovering the secrets of coming months.

MONTREAL, October, 1881.

HENRY G. VENNOR.

1882.

THE SEASONS.

Spring begins	March 20	Autumn begins.....	September 22
Summer begins	June 21	Winter begins.....	December 21

CYCLES OF TIME.

Dominical Letter.....	A	Roman Indiction.....	10
Epact	11	Julian Period.....	6595
Golden Number.....	2	Dionysian Period.....	211
Solar Cycle.....	15	Jewish Lunar Cycle.....	18

MORNING AND EVENING STARS.

MORNING STARS: Mercury, until January 6, and from February 22 to May 2; also, from June 28 to August 14; also, from October 22 to December 17. Venus, until February 20, and after December 6 to the end of the year.	EVENING STARS: Mercury, from January 6 to February 22; also, from May 2 to June 28; also, from August 14 to October 22. Venus, from February 20 to December 6.
--	---

PLANETS BRIGHTEST.

Venus, November 1; Mars, not this year; Jupiter, December 18; Saturn, November 14.

Mercury, February 6, after sunset; March 21, before sunrise; June 1, after sunset; July 19, before sunrise; September 28, after sunset; November 7, before sunrise.

GENERAL FORECAST FOR THE AUTUMN AND WINTER OF 1881.

HITHERTO, my "General Forecasts" of the approaching seasons have proved successful, and where "misses" have occurred, these in the greater number of instances have been connected with later and more detailed attempts for the weeks and days. This is just as might naturally have been expected in the yet infantile science of weather-prognostication. One may grasp or foresee the character, as a whole, of an approaching season, but may waver when he comes to fill in detail this general outline. I have therefore to request the readers of this Almanac and students of meteorology generally to study carefully, first, the leading and general forecast for the approaching winter or summer season, and after this, and in a more liberal way, the monthly and weekly probabilities; bearing in mind that, as yet, greater detail must be to a great extent experimental.

Peering into the future, then, from the date on which I am writing (Sept. 1, 1881), let us endeavor to catch, first, the probable character of the autumn of 1881 and the winter of 1882, and after these the succeeding spring and early summer months.

Now, before looking forward it is essential that we should glance backward, in a very brief manner, over a period of months, and observe what has been. We see away behind us, moving off for ever into the ocean of the Past, a long and severe winter (1880-81) over the North American continent, marked in an unusual degree with its snow-storms and "cold dips;" a spring of unusual dryness (as might have been expected from the great precipitation during the winter months); and a summer of great drought, with frequent periods of intense heat up to the entering of September. Altogether, a remarkable year, as far as it has gone, has been that of 1881. It has been, however, a simple instance of "give and take," great precipitation and cold having been followed by drought and heat. Thus, as the scoring has been about even, we may be said to be starting afresh.

OCTOBER, 1881.

THIS month is likely to enter cold and wet, and continue so, with some few days' exception, up to its latter end. The first ten or twelve days are likely to be cold, wet, and wretched in most sections, while snow is likely to fall in northern and western sections as early as the 7th, and between this date and the 15th there will be frequent alternations of rain and snow. In Canada and Northern New York the month will probably be decidedly

wintry. After a brief period of genial weather shortly after the middle of October, heavy and steady rains will be almost universal, and particularly so in western and southern areas.

NOVEMBER, 1881,

will probably enter cold and decidedly wet, but this condition will suddenly, after the first week, give place to open and genial weather again nearly everywhere, with a disappearance of frosts even in Northern New York and Canada for a marked period. We may expect some of the finest—at any rate, most enjoyable—weather of the season during this month at New York, Boston, Philadelphia, and Washington, and in Canada our “Indian summer.” In western sections the fore and latter portions of the month are likely to be disagreeable, but I do not anticipate much trouble from snowfalls or blockades this winter until December. Should such occur, however, it will likely be found that the dates of the disturbances will be very nearly the same as those of the November of 1880. Possibly there may be a period of unusual warmth in proximity to the middle of the month.

There will be late fall-ploughing in Western Canada and in the Northwest, but in the last week of November a sudden and very severe fall of temperature will occur generally through Canada, with but little snow, if any, on the ground.

This month will be marked by periods of balmy and brilliant autumn weather, as in the year 1877. —

DECEMBER, 1881.

I hardly like the look of this month, viewed from the present standpoint (Sept. 18). It “looks ugly,” and smacks of cold, bitter, biting cold, north and south, east and west, with but sparsely snow-covered ground in Northern New York and Canada, and bare ground west and south. The month bids fair to be cold and dry, rather than otherwise, and this cold may be somewhat proportionate to the heat of the past summer, and extend to extreme southern and western points. The entry of the month is likely to bring in winter abruptly in most sections where winter is usually expected and experienced. The first week of the month will probably give the first good snowfalls of the season in New York, Canada, and westward, with considerable bluster, while cold, stormy, and wet weather will be experienced in southern localities. Snowfalls will again occur about the middle of the month in Canada and the Northern United States, and during the last few days of the month, again, as far south as Washington, D. C., where it is probable the New Year will enter with fair sleighing for a brief period. These snowfalls, however, are not likely

to be as marked and severe as those of the past winter; but, as I have already stated, the "cold dips" look formidable in most sections.

As December is an important one of the winter months, and, further, is one about which I am particularly careful (as a miss there is generally a miss everywhere), I append the following more detailed forecast of it for the benefit of persons to whom the character of the closing month of the year is of special interest:

A MORE DETAILED SKETCH.

Dec., 1881.—1, 2, 3. Storms or indications of storms in Atlantic, and cold, blustery weather at New York, Boston, and other seaboard cities; snowfalls in the Middle and Northern States and Canada; very cold weather West. Probably a brief mild term.

7 to 11. Generally very cold weather, probably commencing and ending with snowfalls in northern, middle, and western sections, and bleak and stormy weather South.

13 & 14. Probably milder in all sections, with rains South and West to a limited extent.

15 to 20. Very cold and blustery period, with snowfalls where these were experienced in 1876 and 1880, the 19th and 20th probably being the days most marked in this respect; intense cold in Canada and the New England States.

25. Christmas has a cold and stormy period both before and after it, but the day itself may just escape.

26 to 31. After the 26th I see nothing but cold, snow, and bluster to the close of the year for Canada and much of the United States, West and South, the month probably resembling, in many respects, the Decembers of 1876 and 1880. As to the intensity or degree of these snowfalls, I have no very definite indications, but am strongly impressed in the direction of low temperatures for the fore part of the approaching winter season.

But January will have its "thaw" this time, and probably a very marked one.

FOR NORTHERN SECTIONS IN THE U. S. AND CANADA.

December.—*Snowfalls* are probable on the 2d, 4th, 6th or 7th, 9th, 12th, 15th, 17th and 18th, 26th or 27th, 29th and 30th. These dates include both light and heavy snowfalls, the former being far more numerous than the latter.

Cold snaps are probable on the 1st and 2d, 5th, 9th and 10th, 16th, 17th and 18th, 20th and 21st. (Coldest periods in Italics.)

Mild weather probable 3d and 4th, 12th, 13th, 14th.

Blustery weather is likely to occur on the 7th and 8th, 9th and 10th, 15th and 16th, 18th and 19th, 29th and 30th.

GENERAL IMPRESSIONS.

My general impressions respecting the winter of 1881-82 at the present time (Sept. 25) point to some very open and balmy periods of considerable duration toward midwinter; early and intense cold at the setting-in of the season, and again toward and in March; a rather backward and wet spring, and cool, wet summer, with but few very hot periods.

NOTE.—See January, February, March, etc. in their proper places in body of Almanac.

END OF 1881.

1st Month.

JANUARY, 1882.

31 Days.

MOON'S PHASES.		BOSTON.	NEW YORK.	WASH'TON.	CHARLES'N.	CHICAGO.
	D.	H. M.				
Full Moon.....	4	6 2 morn.	6 2 morn.	5 50 morn.	5 38 morn.	5 8 morn.
Third Quarter.	12	11 3 morn.	10 51 morn.	10 39 morn.	10 27 morn.	9 57 morn.
New Moon.....	19	11 51 morn.	11 39 morn.	11 29 morn.	11 15 morn.	10 45 morn.
First Quarter..	26	3 1 morn.	2 49 morn.	2 37 morn.	2 25 morn.	1 55 morn.

This month its name distinctly traces
 Unto the god that bore two faces;
 From which we fairly may reflect
 In our new plans 'tis well to retrospect.

Day of Year.	Day of Month.	Day of Week.	
1	1	S	The year will enter fine and moderate in the majority of sections, but with falling temperature toward or on the 3d, and cold snap, varying in intensity according to location, between the 3d and 5th days. Heavy snowfalls probable throughout Central Canada and southward to New York and Washington, with considerable bluster about the end of week (7th).
2	2	M	
3	3	Tu	
4	4	W	
5	5	Th	
6	6	Fr	
7	7	Sa	
8	8	S	1st Sunday after Epiphany. Probably a day of storm generally.
9	9	M	It is probable that this week will give a very cold term in northern and western sections; moderating toward the end of the week to heavy snowfalls in Canada and Northern States, and rains in more southern sections.
10	10	Tu	
11	11	W	
12	12	Th	
13	13	Fr	2d Sunday after Epiphany.
14	14	Sa	
15	15	S	
16	16	M	Unsettled and stormy but moderate weather will likely characterize the entry of this week, with blustery and drifty weather in the West and rain to the southward, followed by still milder weather and alternations of snow, sleet, and rain in northern sections. An occasional fine day between these disturbances.
17	17	Tu	
18	18	W	
19	19	Th	
20	20	Fr	
21	21	Sa	3d Sunday after Epiphany.
22	22	S	
23	23	M	
24	24	Tu	Probably a continuation of the same fluctuations, but moderate weather, with snow- or rainfalls. Alternately frosty and mild. The 25th is likely to bring lower temperature. Cold weather in the North-west during this week. Very low temperature. Week likely to end mild, with snow and rains extending southward to New York and Washington.
25	25	W	
26	26	Th	
27	27	Fr	
28	28	Sa	
29	29	S	
30	30	M	4th Sunday after Epiphany.
31	31	Tu	

1876 entered, in most sections, with mild and rainy weather.
 1877 entered in Canada and United States with heavy snow-storms.
 1878 entered in Canada and United States cold, with but little snow.
 1879 entered in Canada and United States blustery, and plenty of snow.
 1880 entered in Canada and United States mild, rainy, and slushy.
 1881 entered everywhere with very cold and stormy weather.
 1882 is likely to enter stormy, but to a less degree than '81.

THE total snowfall at Montreal for January, February, and March, 1881, amounted to about 72 inches. Only 7 inches fell in February.

Probabilités pour JANVIER.

L'année commencera par un beau temps et une température modérée, dans presque toutes les sections du continent; mais la température baissera vers le 3 du mois et il y aura un froid soudain d'une intensité variable selon la localité, du 3. au 5. Il y aura probablement de fortes tombées de neige dans l'intérieur du Canada et plus au Sud jusqu'à New York et Washington, suivies d'un temps orageux vers la fin de la Semaine. (le 7).

EPIPHANIE.

1er Dimanche après l'Epiphanie. Le temps sera probablement orageux.

Cette semaine sera sans doute très-froide dans les régions du Nord et de l'Ouest. Vers la fin de la semaine la température se modèrera, amenant de fortes tombées de neige au Canada et dans les Etats du Nord, et de la pluie dans les régions méridionales.

2ème Dimanche après l'Epiphanie.

Un temps variable et orageux se manifestera sans doute au commencement de cette semaine, avec grands vents dans l'Ouest et de la pluie dans le Sud, suivis d'une température encore plus douce, et d'alternations de neige, de grésil et de pluie dans les régions du Nord. Des jours de beau temps entre-couperont ces perturbations.

3ème Dimanche après l'Epiphanie.

Mêmes fluctuations, probablement, mais avec un temps doux et de la neige ou de la pluie. Geleé et temps doux alternativement. Le 25 amènera sans doute une température plus basse. Le temps sera froid cette semaine dans les régions du Nord-Ouest. Température très-basse. A la fin de la semaine le temps se radoucira probablement, amenant de la neige et de la pluie vers le Sud jusqu'à New York et Washington.

4ème Dimanche après l'Epiphanie.

Temps doux et alternativement pluvieux, accompagné de jours printaniers, probablement jusqu'à la fin du mois. Point d'indication de changement.

WINTER OF 1881-82 IN GREAT BRITAIN.

The winter of 1881-82 is likely to set in early and severely in Great Britain, with heavy snowfalls and extreme cold. The "tremendous snowfalls" are likely to be on the opposite side of the Atlantic this time.

THE ENTRY OF THE WINTER OF 1880-81.

SNOW was recorded in many sections as early as the 16th. of October in the autumn of 1880, in the United States, Canada, and Scotland, and was accompanied by very stormy and wintry weather nearly everywhere; while in the spring of 1881 the latest snowfalls of consequence were recorded on the 15th and 16th days of April through Northern Vermont, and cold weather with frosts on the entry of May. Truly, then, it may be stated that the winter of 1880-81 was a long and severe one.

MOON'S PHASES.	BOSTON.		NEW YORK.		WASH'TON.		CHARLES'N.		CHICAGO.	
	D.	H. M.	H. M.	H. M.						
Full Moon.....	3	1 14 morn.	1 2 morn.	0 50 morn.	0 38 morn.	0 8 morn.				
Third Quarter.	11	3 50 morn.	3 38 morn.	3 26 morn.	3 14 morn.	2 44 morn.				
New Moon.....	17	10 6 eve.	9 54 eve.	9 42 eve.	9 30 eve.	9 0 eve.				
First Quarter..	24	4 47 eve.	4 35 eve.	4 23 eve.	4 11 eve.	3 41 eve.				

From *Febus* (meaning pure) this month doth claim
To take its very classic Roman name.
Aquarius now to Pisces yields the sign,
And all the world kneels to St. Valentine.

Day of Year.	Day of Month.	Day of Week.	
32	1	W	Generally very mild weather, with heavy rains West and South.
33	2	Th	Frosty in northern sections about 3d and 4th days. The January mildness will extend well into February.
34	3	Fr	
35	4	Sa	
36	5	S	Septuagesima Sunday.
37	6	M	Changeable but generally mild weather, with occasional days of sharp frost and copious rains in western and southern sections.
38	7	Tu	Light snow-falls in Canada and Northern and Middle States.
39	8	W	Snow disappearing in many localities.
40	9	Th	Colder weather generally toward close of week.
41	10	Fr	
42	11	Sa	
43	12	S	Sexagesima Sunday.
44	13	M	Probably snow-storms West, and colder weather generally; moderating again to snows and rains, according to locality; altogether, a more wintry week. Windy and colder weather between 17th and 20th days, and snowfalls and drifts probable in Far West and in maritime provinces of Canada.
45	14	Tu	
46	15	W	
47	16	Th	
48	17	Fr	
49	18	Sa	
50	19	S	Quinquagesima Sunday.
51	20	M	Cold and stormy weather due in most sections. Mild weather generally for this week, with alternations of snow and rain in northern and
52	21	Tu	Ash Wednesday.
53	22	W	western sections. Rains in Middle and Southern States and Gulf ports.
54	23	Th	Stormy weather toward close of week, with general rains and high winds.
55	24	Fr	
56	25	Sa	
57	26	S	1st Sunday in Lent.
58	27	M	Rains, sleet, and gales probably at New York about the 26th, and through Long Island Sound and adjacent parts, with scattered snowfalls in northern sections. Stormy weather on lakes and the St. Lawrence. Probably colder in proximity to last day of month. The month of February will this year be a somewhat exceptional one, with some very sudden transitions from frost to mildness.
59	28	Tu	

The February of the year 1877 was one of the most remarkable for mildness and scarcity of snow in northern sections on record for a long period of years; while that of the year 1881 was as remarkable for its unusual snowfalls and severity over the whole North American continent. In Canada this month is, in general, rather dry and cold than remarkable for its snowfalls; but of late years there has been much irregularity in our February weather. The month this year is likely to give a good deal of mild and open weather.

Probabilités pour FÉVRIER.

Temps généralement doux; fortes pluies dans les régions de l'Ouest et du Sud; gelée dans les régions du Nord, vers le 3 ou le 4 du mois. La température modérée du mois de Janvier se prolongera une bonne partie du mois de Février.

Dimanche de la Septuagésime.

Temps variable mais généralement doux; quelques jours de fortes gelées et de fortes pluies dans les régions de l'Ouest et du Sud. Légères tombées de Neige au Canada et dans les Etats du Nord et du Centre. Fontes de neige dans plusieurs localités. Temps plus froid vers la fin de la semaine.

Dimanche de la Sexagésime.

Probablement il y aura de fortes tombées de neige dans l'Ouest, et un temps plus froid, qui ensuite se radoucira et amènera de la neige ou de la pluie selon la localité. En somme, la semaine sera plus hivernale. Temps froid et venteux du 17 au 20 du mois et probablement de la neige dans l'intérieur de l'Ouest et dans les provinces maritimes du Canada.

Dimanche de la Quinquagésime.

Indications de temps froid et orageux dans presque toutes les régions. Temps généralement doux pendant la semaine, et alternation de neige et de pluie dans les régions du Nord et de l'Ouest.

Mercredi des Cendres.

Pluies dans les Etats du Centre et du Sud et dans les ports du Golfe. Temps orageux vers la fin de la semaine. Grands vents et pluie.

1er Dimanche de Carême.

Pluies, grésil et coups de vent, probablement à New York vers le 26, et dans le détroit de Long Island et ses environs. Tombées de neige ça et là dans les régions du Nord. Temps orageux sur les lacs et le St. Laurent, et probablement plus froid vers la fin du mois. Le mois de Février, cette année, sera exceptionnel en ce qu'il y aura des transitions très subites quant à la température.

THE SNOW-DRIFTS OF 1881.

THE POWER OF A SNOW-DRIFT.—The North-western Railway Company spent over three hundred thousand dollars in the fight against snow October last. Thirty-four immense snow-ploughs had plenty of work, and these were backed up tremendously by from two to six locomotives each. The might of these ploughs and the great power of a snow-drift may be estimated from the facts that one plough weighing forty-eight thousand pounds, ballasted by eighty thousand pounds of railway iron and driven by six locomotives, attacked a snow-choked cutting, but was defeated. The drift was fifty-two feet high. When the workmen, after the tremendous charge, caught a glimpse of the immense plough, they found that it, with all its one hundred and twenty-eight thousand pounds, had been repelled as if it were a feather, and that it had rolled disconsolately over the drift and lodged against some forest trees, where it proposes to remain until summer. From one cut three hundred and twenty-four thousand cubic yards of snow were taken, but in eight hours the wind had piled it up full again. Nine thousand men were employed from time to time during the winter as shovellers.—*Appleton Post.*

MOON'S PHASES.	BOSTON.		NEW YORK.	WASH'TON.	CHARLES'N.	CHICAGO.
	D.	H. M.				
Full Moon.....	4	7 56 eve.	7 44 eve.	7 32 eve.	7 20 eve.	6 50 eve.
Third Quarter.	12	4 44 eve.	4 32 eve.	4 20 eve.	4 8 eve.	3 38 eve.
New Moon.....	19	7 34 morn.	7 22 morn.	7 10 morn.	6 58 morn.	6 28 morn.
First Quarter..	26	8 49 morn.	8 37 morn.	8 25 morn.	8 13 morn.	7 43 morn.

This month, called March from *Mars*, is full of bluster. For Boreas doth his windy forces muster; [ter, Mars and old Boreas give equal shocks— One sending equal blows, the other equi-knocks.

Day of Year.	Day of Month.	Day of Week.	
60	1	W	
61	2	Th	
62	3	Fr	
63	4	Sa	
64	5	S	2d Sunday in Lent.
65	6	M	
66	7	Tu	
67	8	W	
68	9	Th	
69	10	Fr	
70	11	Sa	
71	12	S	3d Sunday in Lent. Cold and stormy generally, with heavy snow-falls. Cold dips East and West, Lower Provinces (St. John's, N. B., and Halifax), and in all likelihood snow or rains and blustery weather as far south as Washington, D. C., with abrupt changes of temperature.
72	13	M	
73	14	Tu	
74	15	W	
75	16	Th	
76	17	Fr	
77	18	Sa	
78	19	S	4th Sunday in Lent. Blustery and stormy weather and snow-falls in many sections west to Chicago and westward, about entry of week, or 20th and 21st days.
79	20	M	
80	21	Tu	
81	22	W	Frequent snowfalls through Province of Quebec.
82	23	Th	Milder weather on and after the 22d day, with rains and sleet-storms of frequent occurrence in most sections.
83	24	Fr	
84	25	Sa	Wet weather South and East.
85	26	S	5th Sunday in Lent.
86	27	M	Snow-storms probable to westward, and high winds through Canada, accompanied by heavy snow- and rainfalls, particularly about 28th and 29th.
87	28	Tu	
88	29	W	
89	30	Th	
90	31	Fr	The month, however, will probably close generally mild, with indications of a calmer period.

STORMY WEATHER.—CHICAGO, ILL., March 2, 1881.—Another severe storm of wind and snow is raging here this evening. Railroads have not recovered from the effects of Sunday and Monday, and will now have another backset.

— TORONTO, March 4, 1881.

A CONTINUOUS and heavy fall of snow has been in progress during the past twenty hours, and the streets are covered to a depth of about eight inches. In several sections of the city the fire-alarm telegraph-wires and other city wires are down.

DESPATCHES from every part of Ontario report rough, stormy weather, high winds, and deep snow for the past 24 hours, greatly delaying all travel.

Probabilités pour MARS.

Les grands vents orageux du mois de Mars se feront sans doute sentir vers le 3, le 4 ou le 5, accompagnés de neige ou de pluie, selon la localité. Au Canada et dans les régions du Nord des États-Unis, cette semaine sera une des plus hivernales, et il en sera de même dans l'Ouest et le Nord-Ouest. Il y aura probablement de la neige et du grésil à Washington, et un temps glacial.

2^{ème} Dimanche du Carême.

Temps probablement froid et orageux partout durant les premiers jours de la semaine; neige dans les régions du Nord et de l'Ouest. Il y aura sans doute un froid subite, vers le 7 ou le 8 du mois, au Canada et dans les États du Nord et du Centre.

3^{ème} Dimanche du Carême.

Temps froid et orageux, en général, et fortes tombées de neige. Froid soudain dans les régions de l'Est et de l'Ouest, et les Provinces méridionales (St. Johns, N. B. et Halifax). et en toute probabilité de la neige ou de la pluie et un temps venteux, vers le Sud jusqu'à Washington, D. C., avec changements soudains de température.

Il se pourrait que, particulièrement le 17 et le 18, le temps fut orageux. Temps froid dans le Nord-Ouest durant la semaine.

4^{ème} Dimanche du Carême.

Temps orageux et venteux et tombées de neige dans beaucoup de sections de l'Ouest jusqu'à Chicago, vers le commencement de la semaine, ou le 20 ou 21 du mois.

Fréquentes tombées de neige dans la Province de Québec.

Temps plus doux le 22 et après; pluie et grésil, par intervalles, dans presque toutes les régions.

Temps pluvieux dans le Sud et l'Est.

5^{ème} Dimanche du Carême.

Neige, probablement dans les régions de l'Ouest; grands vents au Canada, accompagnés de fortes tombées de neige, surtout vers le 28 et le 29. Le mois, toutefois, se terminera probablement par un temps doux, avec indications d'une période plus modérée.

HOW MARCH GOES OUT.—Mr. Vennor may justly be credited with the storm which closes this year's March weather, for his Almanac says: "On the 30th the weather will be blustering, with sleet and snow, possibly, at many points East and West." There was a sleet-storm nearly all day yesterday, changing to snow at nightfall, and this morning there were from six to eight inches of damp, heavy snow. The trees were more heavily loaded with snow than at any time this season, and presented a beautiful spectacle during the morning.

At the West the storm was very severe. Columbus, Ohio, had more snow than in any previous storm this season, and two feet deep are reported in various parts of this State.—*Worcester (Mass.) Paper*, April, 1881.

"To place forecasts of weather, even of the general weather of the coming season, on a sound and certain basis, to gain the power of foretelling a cold spring, a wet summer, or a late harvest, would be to confer an incalculable benefit upon the people of this country, and would throw into utter insignificance most of the topics of dispute or subjects of compromise which are included under the general denomination of 'public affairs.'"—*London Times*.

MOON'S PHASES.	BOSTON.		NEW YORK.		WASH'TON.		CHARLES'N.		CHICAGO.	
	D.	H. M.	H. M.	H. M.	H. M.					
Full Moon.....	3	1 3 eve.	0 51 eve	0 39 eve.	0 27 eve.	11 57 morn.				
Third Quarter.	11	1 46 morn.	1 34 morn.	1 22 morn.	1 10 morn.	0 40 morn.				
New Moon.....	17	4 54 eve.	4 42 eve.	4 30 eve.	4 18 eve.	3 48 eve.				
First Quarter..	25	2 12 morn.	2 0 morn.	1 48 morn.	1 36 morn.	1 6 morn.				

Day of Year.	Day of Month.	Day of Week.	Whether this month to Flora or to Ceres The Romans gave, admits of many queries; <i>Aperio</i> is "to open;" this suggestion Proves 'twas intended for an open question.
91	1	Sa	
92	2	S	Sunday before Easter.
93	3	M	Generally fine warm weather, with frosty nights, in portions of Canada and Northern New York.
94	4	Tu	
95	5	W	Unusual warmth in western sections during week.
96	6	Th	Showers probable about 6th and 7th. Cool and unsettled weather:
97	7	Fr	may occur again, with cool nights and frosts in some sections.
98	8	Sa	General signs of an advanced season.
99	9	S	Easter Sunday.
100	10	M	Fine warm and dry weather, with every prospect of speedy opening
101	11	Tu	of navigation in northern sections.
102	12	W	A colder wind may set in for a day or two.
103	13	Th	Very little rain so far.
104	14	Fr	
105	15	Sa	Altogether, a fair, warm to hot week.
106	16	S	Low Sunday. Change to cloudy and possibly cooler weather, with
107	17	M	showers or indications of rain.
108	18	Tu	Navigation probably will open on St. Lawrence River this week.
109	19	W	Latter portion of week colder, with rain, sleet, and probably snow, in
110	20	Th	northern sections, and particularly in Lower St. Lawrence and New
111	21	Fr	York State, about 20th or 21st.
112	22	Sa	Fine warm to hot and dry weather on and after the 22d.
113	23	S	2d Sunday after Easter. Probable change to warmer and generally
114	24	M	dry weather. Indications of storms, probably with high winds,
115	25	Tu	with cooler and stormy weather in the West. Altogether, a warm and
116	26	W	dry week in the majority of sections.
117	27	Th	Not at all like usual April weather.
118	28	Fr	Change to cool and rainy weather after the 28th day.
119	29	Sa	
120	30	S	3d Sunday after Easter. Colder weather, with rain- and snow-
			falls, in some northern portions, probably ushering in a cold and wet May.

VENNOR predicts, "There will be fine warm and dry weather during Easter week." Cut this out, ladies, and paste it in your new Easter bonnets.

VENNOR sets aside the old and widely-accepted auguries bearing upon the weather, and says birds and animals know no more what the weather is going to be than men do. We fear Vennor will live and die without winning the confidence of the goose-bone folks of Kentucky.—*Boston Post*.

The latter part of April and entry of May, 1882, will remind one of winter again, and the spring is likely to be cold and backward generally.

Probabilités pour AVRIL.

Dimanche avant Pâques.

Temps généralement beau et chaud ; gelée la nuit, dans certaines parties du Canada et dans le Nord de New York.

Chaleurs extraordinaires dans les régions de l'Ouest pendant la semaine.

Petites averses, probablement le 6 et le 7 du mois. Il se peut que le temps redevienne frais et variable, avec nuits froides et de la gelée dans quelques régions.

Indications générales d'une saison avancée.

Dimanche de Pâques.

Temps sec et beau ; perspective d'une prompte ouverture des cours d'eau à la navigation, dans les sections du Nord.

Un vent plus froid pourrait bien avoir lieu pendant un jour ou deux.

Très-peu de pluie jusqu'à présent.

En somme, il fera beau et plus ou moins chaud pendant la semaine.

Dimanche de Quasimodo.

Changement à un temps couvert et peut-être plus froid ; petites averses ou indications de pluie.

Le St. Laurent sera sans doute dégelé et navigable cette semaine.

Vers la fin de la semaine, temps plus froid, pluie et grésil, et peut-être de la neige dans les régions du Nord, particulièrement dans la section du bas St. Laurent et dans l'Etat de New York, vers le 20 ou le 21.

Beau temps, sec et plus ou moins chaud le 22 et après.

2ème Dimanche après Pâques,

Changement probable à un temps plus chaud et généralement sec. Indications d'orages et probablement de grands vents ; temps plus froid et orageux dans l'Ouest. En somme, temps chaud et sec pendant la semaine dans la plupart des régions ; nullement semblable au temps ordinaire du mois d'Avril.

Après le 28, changement de temps au froid et à la pluie.

3ème Dimanche après Pâques.

Temps plus froid ; pluie et neige dans quelques sections du Nord ; indications presque certaines de froid et de pluie dans la première partie du mois de Mai.

A NATURAL BAROMETER.

EVERYBODY has admired the delicate and ingenious work of the spider, everybody has watched her movements as she spins her wonderful web, but all do not know that she is the most reliable weather-prophet in the world. Before a wind-storm she shortens the threads that suspend her web, and leaves them in this state as long as the weather remains unsettled. When she lengthens these threads count on fine weather, and in proportion to their length will be its duration. When a spider rests inactive it is a sign of rain ; if she works during a rain, be sure it will soon clear up and remain clear for some time. The spider, it is said, changes her web every twenty-four hours, and the part of the day she chooses to do this is always significant. If it occurs a little before sunset, the night will be fine and clear. Hence the old French proverb : "Araignée du soir, espoir."

MOON'S PHASES.		BOSTON.		NEW YORK.		WASH'TON.		CHARLES'N.		CHICAGO.	
	D.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.				
Full Moon.....	3	3 47 morn.	3 35 morn.	3 23 morn.	3 11 morn.	2 41 morn.					
Third Quarter.	10	7 51 morn.	7 39 morn.	7 27 morn.	7 15 morn.	6 45 morn.					
New Moon.....	17	2 25 morn.	2 13 morn.	2 25 morn.	2 13 morn.	1 43 morn.					
First Quarter..	24	7 33 eve.	7 21 eve.	7 33 eve.	7 21 eve.	6 51 eve.					

Day of Year.	Day of Month.	Day of Week.	
			May formerly was sacred to Apollo; The ancients little thought of what would follow—That May, descending as time onward rolls, Should e'er by Fate be made the fête of "Poles."
121	1	M	
122	2	Tu	May will probably enter cold and unsettled, with cold rains and sleet and snowfalls in sections of Province of Quebec, Northern New York State, and at some western points about 2d and 3d, followed by warmer weather generally between the 4th and 7th days.
123	3	W	
124	4	Th	
125	5	Fr	
126	6	Sa	
127	7	S	4th Sunday after Easter.
128	8	M	Probable change again to cool and unsettled weather between 7th and 10th of month. After 10th generally fair and warm weather, with periods of sultriness and storms, which it would be foolish to attempt to fix to date.
129	9	Tu	
130	10	W	
131	11	Th	
132	12	Fr	Warm to hot about 12th and 13th, with strong winds. Bush-fires likely in many sections.
133	13	Sa	
134	14	S	Rogation Sunday.
135	15	M	A general week of fine summer-like weather, with the usual periods of sultriness and storm in a May month.
136	16	Tu	Indications of a change toward the 21st.
137	17	W	
138	18	Th	Ascension Day.
139	19	Fr	Pretty hot weather up to 19th, with frequent storms of thunder and lightning.
140	20	Sa	
141	21	S	Sunday after Ascension.
142	22	M	Cooler and unsettled weather, with high winds generally; cool to cold rains and backward signs. Stormy weather in western sections probable about 25th and 26th. Warm and sultry weather with strong winds through remainder of month. Smoky weather. Altogether a very changeable month, with great range of temperature from frost-line to full summer heat.
143	23	Tu	
144	24	W	
145	25	Th	
146	26	Fr	
147	27	Sa	
148	28	S	Whitsunday.
149	29	M	
150	30	Tu	Warmer and more unsettled weather in most sections up to close of month. There is just a possibility of the cool and unsettled term occurring at the close of May instead of between the 21st and 28th, as given here; but I am inclined to place greater faith in the latter view.
151	31	W	

VENNORISMS.

VENNOR? The Canadian seer seems to have been forecasting the weather pretty accurately of late. Perhaps he will let us know just how much water we shall have this summer. As a measure of economy, the government might discontinue the Signal Service, and save the expense of "probabilities" by hiring the venerable Saturn of Canada to gauge the weather.—*Paper Trade Jour.*

MR. VENNOR: Respected Sir—If you will compromise on—say three feet—and a little higher temperature, call immediately and sign papers.

Yours, truly,

Probabilités pour

MAI.

Le mois de Mai commencera sans doute par un temps froid et variable, avec pluie, grésil et neige dans une partie de la Province du Quebec, le Nord de New York et dans quelques parties de l'Ouest, vers le 2 ou le 3, suivis d'un temps généralement plus chaud, du 4 au 7 du mois.

4ème Dimanche après Pâques.

Changement probable à un temps encore froid et variable, du 7 au 10 du mois. Après le 10, temps généralement beau et chaud, entre-coupé d'intervalles de chaleurs humides et d'orages, dont il serait insensé de fixer la date.

Chaleur plus ou moins forte et grands vents vers le 12 et le 13. Feux de broussailles, probablement, dans beaucoup de régions.

5ème Dimanche après Pâques.

Temps d'été, en général, pendant la semaine, avec intervalles de chaleurs humides et d'orages, comme d'ordinaire au mois de Mai. Indications d'un changement vers le 21.

Jour de l'Ascension.

Temps passablement chaud jusqu'au 19, et orages fréquents, accompagnés de tonnerre et d'éclairs.

Dimanche après l'Ascension.

Temps plus frais et variable; grands vents, en général. Pluies avec température plus ou moins froide et indications d'une saison arriérée. Temps orageux dans les sections de l'Ouest, probablement vers le 25 et le 26. Temps chaud et humide, et grands vents le reste du mois. Temps épais et sombre. En somme, le temps ce mois-ci sera très-variable, avec fluctuations de température entre glace et chaleur d'été.

Dimanche de la Pentecôte.

Temps plus chaud et variable, dans presque toutes les régions, jusqu'à la fin du mois. Il y a une faible possibilité que le terme de temps froid et variable ne se manifeste à la fin du mois, au lieu de se manifester entre le 21 et le 28, comme il est indiqué ci-dessus; mais je suis plutôt porté à ajouter foi à cette dernière opinion.

MAY is the fifth month in the year, reckoned from our first of January, and the third, counting the year to begin with March, as the Romans anciently did. The derivation of the name is in doubt, but it is supposed it was called *Maius* by Romulus from respect to the senators and nobles of his city, who were named *maiores*, as the following month was called *Junius* in honor of the youth of Rome who served him in the war; though some will have it to have been thus called from *Maia*, the mother of Mercury.

In this month the sun enters Gemini, and the plants of the earth in general begin to flower. From an early period it was the custom for all ranks of people in England, France, and other European countries to go out "a-Maying," as it was called, early on the 1st of May. The month of May has ever been esteemed favorable to love, and yet the ancients, as well as many moderns, look on it as an unhappy month for marriage. The original reason may perhaps be referred to the feast of the Lemures, which was held in it.

MOON'S PHASES.		BOSTON.	NEW YORK.	WASH'TON.	CHARLES'N.	CHICAGO.
	D.	H. M.	H. M.	H. M.	H. M.	H. M.
Full Moon.....	1	3 49 eve.	3 37 eve.	3 25 eve.	3 13 eve.	2 43 eve.
Third Quarter.	8	0 26 eve.	0 14 eve.	0 2 eve.	11 50 morn.	11 20 morn.
New Moon.....	15	1 49 eve.	1 37 eve.	1 25 eve.	1 13 eve.	0 43 eve.
First Quarter..	23	1 17 eve.	1 5 eve.	0 53 eve.	0 41 eve.	0 11 eve.

Day of Year.	Day of Month.	Day of Week.	
			Juno and June so nearly are the same, One from the other must have got its name; The sign is Cancer, "Crab," and all admit, That Juno's crabbed temper it will fit.
152	1	Th	Warm to hot and dry weather. Rains required in most sections; indications of their approach.
153	2	Fr	
154	3	Sa	
155	4	S	Trinity Sunday.
156	5	M	Rainy weather probable in North-west and West, want showers and
157	6	Tu	warm weather in most other sections. Heavier rainfalls about the 9th
158	7	W	and 10th days, ending in cooler weather.
159	8	Th	Corpus Christi. Muggy, oppressive weather with heavy showers,
160	9	Fr	and probably storms of thunder and lightning.
161	10	Sa	
162	11	S	1st Sunday after Trinity.
163	12	M	Probably much cooler weather, with cool to cold nights in Canada
164	13	Tu	and northern sections United States, and rains West during early por-
165	14	W	tion of week. Quite a marked relapse in many localities. Storms of
166	15	Th	wind and hail probable in Western Ontario. There will probably be
167	16	Fr	frosts in some northern sections and Canada.
168	17	Sa	
169	18	S	2d Sunday after Trinity.
170	19	M	Rains and frosts may occur about the 20th, 21st, or 22d in Canada
171	20	Tu	and United States, South and West, and cool showers and unsettled
172	21	W	weather are likely to prevail through greater portion of week-in the
173	22	Th	majority of sections. Frost may cause considerable damage to crops
174	23	Fr	during this period. Warmer weather generally toward the 24th and
175	24	Sa	25th.
176	25	S	3d Sunday after Trinity.
177	26	M	Probably warmer, with wind- and rain-storms, and periods of hot and
178	27	Tu	sultry weather, with storms, through Canada and Western and Southern
179	28	W	United States. The month is likely to end hot and sultry, with rain-
180	29	Th	and thunder-storms in same sections.
181	30	Fr	

SPECIAL NOTE.—Reader, when you come to test my probabilities for the month of JUNE, please understand that they date from September 25, 1881, nearly *nine months* back; consequently, they must be dealt with liberally. I do not claim to be altogether "a prophet."

My predictions for each of the subsequent months will appear in "Stoddart's Review," published monthly by J. M. Stoddart & Co., Philadelphia, sufficiently in advance to give the forecast in considerable detail for each succeeding month.

HENRY G. VENNOR.

Probabilités pour JUIN.

Chaleurs plus ou moins intenses, et temps sec. Sécheresse dans presque toutes les régions. Indications de pluies très-proches.

Dimanche de la Trinité.

Temps pluvieux, très-probablement dans l'Ouest et le Nord-Ouest. Petites pluies et chaleur dans presque toutes les autres régions. Fortes pluies vers le 9 et le 10 du mois, suivies d'un temps plus frais.

Fête du Saint Sacrement.

Temps lourd et humide, accompagné de fortes pluies, et probablement de tonnerre et d'éclairs.

1er Dimanche après la Trinité.

Temps probablement beaucoup plus frais ; nuits plus ou moins froides dans le Canada et dans les sections du Nord des Etats-Unis et pluie dans l'Ouest, pendant les premiers jours de la semaine. Temps rétrograde dans plusieurs localités. Vents orageux et grêle, probablement dans l'Ouest de l'Ontario. Il y aura probablement de la gelée dans quelques régions du Nord et au Canada.

2ème Dimanche après la Trinité.

Il se peut qu'il fasse de la pluie et de la gelée vers le 20 le 21 ou le 22 au Canada et dans le Nord de New York ; et il y aura probablement des orages et un temps variable, pendant la majeure partie de la semaine, dans presque toutes les régions. Les récoltes pourraient bien souffrir à cette époque par suite des gelées.

Temps plus chaud vers le 24 et le 25.

3ème Dimanche après la Trinité.

Temps probablement plus chaud ; vents orageux et pluie. Intervalles de temps humide et chaud, et orages au Canada et dans le Sud et l'Ouest des Etats-Unis. A la fin du mois le temps deviendra sans doute très-chaud et lourd, avec orages accompagnés de tonnerre, dans les mêmes régions.

STORMS OF JUNE, 1881.

THE LATE STORM-PERIOD.—Mr. Vennor again, unfortunately, "guess-ed" only too well in predicting, both in his late Almanac and revised forecast for June, the storm-period which has just swept over a large portion of North America. His prediction, dating from September of 1880 (Almanac, page 21), reads as follows: "The neighborhood of the 29th is likely to prove stormy in Western Ontario and Western United States, the storms being, in all probability, accompanied by thunder and lightning and hail." In his more recent revision of this prediction he added the 28th day as within the storm-period, and, as seen by our telegraph despatches, on both of these dates (28th and 29th) storms, tornadoes, and thunder and lightning prevailed throughout Ontario and the Western States, causing damage everywhere, as well as loss of life. Mr. Vennor informs us that this prediction was based upon his theory of "recurring periods," and that this is but the commencement of a series of similar disturbances which are to run through the present month.

	MOON'S PHASES.		BOSTON.		NEW YORK.		WASH'TON.		CHARLES'N.		CHICAGO.	
	D.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.					
Full Moon.....	1	1 24 morn.	1 12 morn.	1 0 morn.	0 48 morn.	0 18 morn.						
Third Quarter...	7	5 8 eve.	4 56 eve.	4 44 eve.	4 32 eve.	4 2 eve.						
New Moon.....	15	2 17 morn.	2 5 morn.	1 53 morn.	1 41 morn.	1 11 morn.						
First Quarter..	23	5 33 morn.	5 21 morn.	5 9 morn.	4 57 morn.	4 27 morn.						
Full Moon.....	30	9 18 morn.	9 6 morn.	8 54 morn.	8 42 morn.	8 12 morn.						

Day of Year. Day of Month. Day of Week. This month Quintilis, or "the fifth," was reckoned Till Julius Cæsar gave a first and second; [ed From which arrangement it at once appears That Julius Cæsar has prolonged our years.

182	1	Sa	
183	2	S	4th Sunday after Trinity.
184	3	M	
185	4	Tu	If the first of July it be rainy weather, It will drizzle for a month together.
186	5	W	
187	6	Th	If Bullion's day (July 4th) be dry, there will be a good harvest.
188	7	Fr	
189	8	Sa	The moon with a circle brings water in her beak.
190	9	S	5th Sunday after Trinity.
191	10	M	
192	11	Tu	The aurora borealis when very bright forebodes stormy, moist, unsettled weather.
193	12	W	
194	13	Th	A haze around the sun indicates rain: it is caused by fine rain falling in the upper regions of the air; when it occurs, a rain of five or six hours' duration may be expected.
195	14	Fr	
196	15	Sa	
197	16	S	6th Sunday after Trinity.
198	17	M	
199	18	Tu	In this month is St. Swithin's day (15th), On which, if that it rain, they say
200	19	W	Full forty days after it will
201	20	Th	Of more or less some rain distil.
202	21	Fr	
203	22	Sa	
204	23	S	7th Sunday after Trinity.
205	24	M	A halo round the moon is an indication of rain, it being produced by fine rain in the upper regions of the atmosphere.
206	25	Tu	
207	26	W	The larger the halo, the nearer the rain-clouds and the sooner rain may be expected.
208	27	Th	
209	28	Fr	A halo round the sun has often been followed by heavy rains.
210	29	Sa	
211	30	S	8th Sunday after Trinity.
212	31	M	

ALTERNATIONS of very hot and stormy weather, with frequent rains, generally up to about 10th of month. Some of these storms in Western Canada and Western United States are likely to be very severe, causing much damage. A cooler change between the 10th and 13th, with, possibly, a frosty night or two. Hot and oppressive weather, with heavy rain- and wind-storms, between 15th and 20th. A great deal of rain and storm so far this month. Between 20th and 23d cooler and windy weather, with continued rains and cool evenings and nights. Between 24th and 26th there is likely to occur a very hot term. After the 26th or 27th, sultry, warm, and oppressive weather, with thunder-storms, up to close of month. There may be indications of a cooler change about the last day of month—probably, altogether, a muggy and reeking wet month, very different from that of 1881.

RECORD OF THE PAST YEAR.

COLD SNAPS; "POLAR WAVES."

IN case people forget this sort of thing, and imagine our winters are getting "milder of late years," it had better be placed on record; and in no place will it be so universally read and noted as in the pages of *Ven-
nor's Almanac*.

After a period of comparative mildness, ending in widely-scattered snow-storms, the mercury early on the morning of the 28th of December, 1880, took a sudden and tremendous plunge to and below the zero-line over almost the entire length and breadth of the North American continent. The following is a tabulated record of the low temperatures then registered:

CANADA.

Toronto (lowest in 24 hours).....	2°	above zero.
Fort Garry.....	41	below "
Collingwood.....	5	" "
Palmerston.....	4	" "
St. Thomas.....	0,	zero.
Kincardine.....	3	below zero.
Stratford.....	4	" "

UNITED STATES.

Escanaba.....	20°	below zero: fall of 26°
Duluth.....	30	" " " 9
St. Paul.....	25	" " " 14
Milwaukee.....	19	" " " 19
Lacrosse.....	20	" " " 5
Chicago.....	9	" " " 18
Alpena, Mich.....	10	" " " 36
Detroit.....	3	" " " 30
St. Louis.....	4	" " " 14
Indianapolis.....	4	" " " 30
Cincinnati.....	6	" " " 25
Pittsburg.....	5	" " " 22
Buffalo.....	4	" " " 22
Rochester.....	5	" " " 22
Washington.....	19	" " " 13

A period of snow-storms followed this unusually severe period, and this was again succeeded by another "cold snap," of which the following was recorded in Canada:

MOON'S PHASES.		BOSTON.	NEW YORK.	WASH'TON.	CHARLES'N.	CHICAGO.
	D.	H. M.	H. M.	H. M.	H. M.	H. M.
Third Quarter.	5	11 29 eve.	11 17 eve.	11 5 eve.	10 53 eve.	10 23 eve.
New Moon.....	13	4 26 eve.	4 14 eve.	4 2 eve.	3 50 eve.	3 20 eve.
First Quarter...	21	8 11 eve.	7 59 eve.	7 47 eve.	7 35 eve.	7 5 eve.
Full Moon.....	28	4 35 eve.	4 23 eve.	4 11 eve.	3 59 eve.	3 29 eve.

Day of Year.	Day of Month.	Day of Week.	
			Augustus Cæsar, seized by love of fame, Gave to this seasonable month his name. To Ceres it was dedicated; ergo, Its sign Zodiacal of course was Virgo.
213	1	Tu	The month of August is likely to give a good deal of rain up to about the 20th day, after which fine warm and dry weather is likely to set in, and extend well through September.
214	2	W	
215	3	Th	"When it rains in August it rains honey and wine." "A wet August never brings dearth."— <i>Old Proverbs.</i>
216	4	Fr	
217	5	Sa	9th Sunday after Trinity. When first the moon appears, if then she shrouds Her silver crescent, tipped with sable clouds, Conclude she bodes a tempest on the main, And brews for fields impetuous floods of rain; Or if her face with fiery flushings glow, Expect the rattling winds aloft to blow.
218	6	S	
219	7	M	10th Sunday after Trinity. But four nights old (for that's the surest sign), With sharpened horns if glorious then she shine, Next day, not only that, but all the moon, Till her revolving race be wholly run, Are void of tempests both by land and sea.— <i>Virgil.</i>
220	8	Tu	
221	9	W	11th Sunday after Trinity. If it rain on St. Bartholomew's Day (24th August), it will rain forty days after.— <i>Roman Proverb.</i>
222	10	Th	
223	11	Fr	If the twenty-fourth of August be fair and clear, Then hope for a prosperous autumn that year.
224	12	Sa	
225	13	S	12th Sunday after Trinity. Sheep huddle together at the approach of bad weather, and turn their tails toward its direction. Dogs and cats feel lazy at the approach of rain. The reason is because the air is deficient in oxygen, and the damp depresses the nervous system.
226	14	M	
227	15	Tu	
228	16	W	
229	17	Th	
230	18	Fr	
231	19	Sa	
232	20	S	
233	21	M	
234	22	Tu	
235	23	W	
236	24	Th	
237	25	Fr	
238	26	Sa	
239	27	S	
240	28	M	
241	29	Tu	
242	30	W	
243	31	Th	

THE August of 1876 was the driest perhaps in a score or more of years; that of 1881 was even more so, and for a much greater period of years. The August of 1877 was excessively wet and stormy, and so in all probability will be the August of 1882. This is my general prediction for the month at date of writing (October 10, 1881).

WHEN overtaken in the country in a thunder-storm, it is safer to stand out in open ground than under shelter of a tree. A valley or hollow is safer than an eminence. Indoors, contiguity to the walls is not so safe as the centre of the room. Placed on a bed or seated in a hair-cushioned chair, with your feet on another, in the middle of an apartment, is a position of almost perfect security, even though the lightning strikes the building and enters the room where you happen to be.

JANUARY, 1881.

Jan. 4:	Quebec.....	8° below zero.
"	Montreal.....	9 " "
"	Ottawa }	25 " "
"	Pembroke } Ottawa River Valley.....	28 " "
"	Rockcliff }	31 " "
"	Matawa }	20 " "
"	Gatineau Mills }	26 " "
"	Peche } Gatineau River Valley.....	31 " "
"	Kazubazua }	30 " "

Snow-storms were again general after this "cold wave," and on the 12th were experienced in England and Scotland.

On the 14th and two following days another frigid wave was reported from all sections. On the 14th in Western cities the temperatures were as follows (below zero): Detroit, 10°; Chicago, 15°; Milwaukee, 15°; Winona, 25°; St. Paul, 24°; Dubuque, 20°; Davenport, 20°; Des Moines, 10°; St. Louis, 8°; Peoria, 18°; Omaha, 14°. The temperature at Montreal on the same date was 9° below zero. In London, Eng., 25° of frost were registered. Strange to say, at Hamilton, Ontario, a thaw and rain set in and sleighing disappeared. On the 15th the mercury fell to 13° below zero at Montreal, and similar low temperatures continued in western sections.

On the 18th there was again intensely cold weather in Manitoba, and snow-storms in South-western States, while in London, Eng., the weather was cold and blustery, with snow. It very often happens that intense cold in the North-west is accompanied by storms and gales in Britain; and certainly this was the case during the January of 1881. On the 21st, Hamilton, Ontario, again had snow sufficient for sleighing in a one-foot-and-a-half snowfall, while snow-storms and gales swept over New York and other seaboard cities of the Middle United States.

On the 22d the north of France was visited by a cold and wintry wave, while on this continent rain and snow-storms and floods in Western Territories were experienced, there causing loss of life and great destruction of property.

On the 24th a cold wave struck North Carolina, and snow fell at Wilmington—a most unusual occurrence; while on the same date heavy rains visited the State of Virginia. In Canada and Northern New York State temperatures were low. On the 26th cold weather was again reported from Britain, while on this side the Atlantic snow-storms were general. It is worthy of note here, for comparison in future, that about this date also snow-drifts in the neighborhood of Poughkeepsie, N. Y., were from seven to fifteen feet deep along some of the lines of railroad.

MOON'S PHASES.	BOSTON.		NEW YORK.		WASH'TON.		CHARLES'N.		CHICAGO.	
	D.	H. M.	H. M.	H. M.						
Third Quarter.	4	8 43 morn.	8 31 morn.	8 19 morn.	8 7 morn.	7 37 morn.				
New Moon.....	12	8 15 morn.	8 3 morn.	7 51 morn.	7 39 morn.	7 9 morn.				
First Quarter..	20	8 44 morn.	8 32 morn.	8 20 morn.	8 8 morn.	7 38 morn.				
Full Moon.....	27	o 26 morn.	o 14 morn.	o 2 morn.	11 50 eve.	11 20 eve.				

Day of Year.	Day of Month.	Day of Week.	
			From <i>septem</i> , "seven," and from <i>umber</i> , "shower," Because September pours with all its power, The month derives its title, it is plain, From the small fact that rain begins its reign.
244	1	Fr	Dew and fog are indicators of fine weather.
245	2	Sa	Small, inky-looking clouds foretell rain.
246	3	S	13th Sunday after Trinity.
247	4	M	If dry be the buck's horn
248	5	Tu	On Holyrood morn,
249	6	W	'Tis worth a vest of gold;
250	7	Th	But if wet it be seen
251	8	Fr	Ere Holyrood e'en,
252	9	Sa	Bad harvest is foretold.— <i>Yorkshire Proverbs.</i>
253	10	S	14th Sunday after Trinity.
254	11	M	A bright yellow sky at sunset presages wind; a pale yellow, wet.—
255	12	Tu	<i>Admiral Fitzroy.</i>
256	13	W	A dark, gloomy blue sky is windy, but a light, bright blue sky indicates fine weather. When the sky is of a sickly-looking greenish hue, wind or rain may be expected.— <i>Ibid.</i>
257	14	Th	
258	15	Fr	
259	16	Sa	
260	17	S	15th Sunday after Trinity.
261	18	M	A rapid rise of the barometer indicates unsettled weather; a slow rise indicates fair weather. The result of all rapid changes in the weather, or in any of the instrumental indicators, is brief in duration, while that of a gradual change is more durable.
262	19	Tu	
263	20	W	
264	21	Th	
265	22	Fr	
266	23	Sa	
267	24	S	16th Sunday after Trinity.
268	25	M	It is generally believed that the storm derives its advancing force from the wind, but this is not so; the direction of the wind at any place being entirely distinct from that of the storm's progress over the earth's surface. For instance, while the storm advances slowly eastward, the wind has every possible direction at different places within the limits of the storm.— <i>Loomis.</i>
269	26	Tu	
270	27	W	
271	28	Th	
272	29	Fr	
273	30	Sa	

THE heat during the early portion of last September (1881), up to the 9th and 10th days, throughout Canada and the United States, will long be remembered by all who experienced it. In Washington on the 7th the heat was almost unbearable, and was recorded by the Signal Service as the hottest day in a period of ten years. This was the fourth torrid wave of the summer of 1881.

THERE were extensive forest-fires in different localities in the United States; especially in the northern part of Michigan, where there was great destruction of life and property. President JAMES A. GARFIELD died the 19th of the month.

On the 29th, as milder weather set in in Britain, another severely cold wave swept over Canada and a portion of the United States, lasting up to the 4th of February. At Montreal the temperature for six consecutive days was 6°, 9°, 8°, 5°, 12°, 16°, and 6° below zero, and at Winnipeg on the 31st of January was 38° below zero. And still the weather continued mild in Great Britain. In Chicago on the night of the 31st one hundred men were employed in clearing the streets of snow.

FEBRUARY, 1881,

entered about the middle of the cold snap with which January closed, and while cold reigned triumphant everywhere. Even Toronto, that most exceptional of all points *re* the weather, was obliged to confess, "Cold and snow have been reigning as supreme here for the last week or so as if there were no Lake Ontario to temper the frost, and as if this were as high a latitude as Montreal or Ottawa."

Trains running into Chicago on the 1st of February were from ten to twenty hours late, "owing to severe snow-storms and drifts," and there was "intensely cold weather throughout New York State." This cold wave also again embraced Hamilton, Ontario, where there was likewise plenty of snow. In Ontario the temperature ranged from 5° to 15° below zero. On the 4th, St. Paul, Minn., was snow-bound, and a heavy storm raged at Winnipeg. On the 6th "a regular blizzard swept over Minnesota and the Far West," and miles of wire were blown down. Storms also raged in New Brunswick.

Following this period of storm, at length came the "January thaw," and rain, slush, and floods reigned supreme for a time. The snows ran off rapidly everywhere. At St. Louis navigation was resumed after being closed for seventy-two days. An extraordinary rainfall occurred in California up to the 7th instant, occasioning disastrous inundations in the Sacramento and San Joaquin Valleys. A very severe storm of rain and sleet, accompanied by low temperature, prevailed in Chicago on the 7th and 8th insts., the breaking down and freezing together of telegraph-wires causing much inconvenience to business-men. On the 11th it was again snowing heavily throughout the North-west, and a railroad blockade was again threatened.

Gales raged on the English coast, and nine barges were sunk in the Thames. In Ireland the storm was the most violent since the great storm of the year 1839. On the 14th snow-storms again took place in Kansas and points westward, and there was a general cessation of the thaw. Floods were reported in Ohio and Pennsylvania and at Washington. There was very stormy weather on the Atlantic. Snow-storms and

MOON'S PHASES.	BOSTON.		NEW YORK.		WASH'TON.		CHARLES'N.		CHICAGO.	
	D.	H. M.	H. M.	H. M.	H. M.					
Third Quarter.	3	9 33 eve.	9 21 eve.	9 9 eve.	8 57 eve.	8 27 eve.				
New Moon.....	12	1 17 morn.	1 5 morn.	0 53 morn.	0 41 morn.	0 11 morn.				
First Quarter..	19	7 11 eve.	6 59 eve.	6 47 eve.	6 35 eve.	6 5 eve.				
Full Moon.....	26	9 50 morn.	9 38 morn.	9 26 morn.	9 14 morn.	8 44 morn.				

October has its name from *octo*, "eight,"
 Though 'tis the tenth, perhaps 'tis well to state:
 Such sixes and such sevens the months were
 That ten became translated into *octo*. [knocked to,

Day of Year.	Day of Month.	Day of Week.	
274	1	S	17th Sunday after Trinity.
275	2	M	
276	3	Tu	If in the fall of the leaves in October many of them wither on the boughs and hang, it betokens a frosty winter and much snow.
277	4	W	
278	5	Th	
279	6	Fr	Good' October, a good blast
280	7	Sa	To blow the hog acorn and mast.
281	8	S	18th Sunday after Trinity.
282	9	M	
283	10	Tu	The dimness of the stars and other heavenly bodies is one of the surest signs of very rainy weather.
284	11	W	
285	12	Th	Sudden rains never last long; but when the air grows thick by degrees, and the sun, moon, and stars shine dimmer and dimmer, then it is likely to rain six hours, usually.
286	13	Fr	
287	14	Sa	
288	15	S	19th Sunday after Trinity.
289	16	M	
290	17	Tu	If the sun sets behind a straight skirting of cloud, be sure of wind from the point where the sun is setting.
291	18	W	
292	19	Th	A bit in the morning is better than nothing all day.
293	20	Fr	Those who would be young when they are old, must be old when they are young.
294	21	Sa	
295	22	S	20th Sunday after Trinity.
296	23	M	After dinner sit a while, after supper walk a mile.
297	24	Tu	He that goes to bed thirsty rises healthy.
298	25	W	An hour's sleep before midnight is worth two hours' after.
299	26	Th	The best physicians are Dr. Diet, Dr. Quiet, and Dr. Merryman.
300	27	Fr	Feed sparingly, and defy the physician.
301	28	Sa	
302	29	S	21st Sunday after Trinity.
303	30	M	The foot of the owner is the best to manure the land.
304	31	Tu	Take a vine of a good soil, and the daughter of a good mother.

THE October of the year 1880 was one of the stormiest and most winter-like in a long period of years. Great snowfalls with drifts occurred in the Western States and North-western Ontario as early as the 15th and 16th of the month. The first snow-storm of the season occurred at Montreal, Canada, on the 19th, while during the same period storms of unexampled severity swept over Lakes Michigan and Huron, occasioning wrecks and loss of life. In London, England, there were dense fogs and darkness, while cold weather with snow prevailed throughout the United Kingdom.

drifts of thirty feet in Minnesota, Iowa, Illinois, Wisconsin, Missouri, and Nebraska on the 12th and 13th. On the 17th it was again 3° below zero in Winnipeg, and a heavy snow-storm set in throughout Northern Illinois, Iowa, and Wisconsin. By the 20th there was very little snow at Montreal, while Western cities were blockaded. Another "cold dip" came along on the 23d and 24th, when the mercury at Montreal fell to 15° below zero, and this was accompanied by another snow-blockade at Chicago and other points westward.

MARCH, 1881,

entered lion-like generally from Montreal, Canada, to Washington, D. C. ; and although the *Argus* of Albany, N. Y., stated under date of the 1st that the month had come in "lamb-like" and contrary to prediction, it on the 2d admitted that this paragraph had been "a grim and ghastly joke." Seeing indications of such a condition of the weather, I as early as the 14th of February, in a letter to the Hon. A. S. Solomons of Washington, gave warning of the approach of the storm, stating distinctly that it would embrace that city. This statement or forecast was ridiculed by many both in Canada and the United States, and was utterly ignored and scoffed at by the Signal Service Office at Washington.

But I must desist, for space will not permit of further detail. Suffice it to state that the entry of March, 1881, was the most blustery and widely-extended period of storm remembered in a long period of years.

On the 12th of the month snow-storms and blizzards again occurred in western sections; and on the 10th and 11th, Montreal, Quebec, and Ottawa came in for the worst storm of the season. Notwithstanding, in the cities last named the snow had nearly disappeared by the 17th, and carts and wagons had replaced the sleighs. On the 15th, 16th, and 17th unusually heavy rains fell in North and South Carolina and Georgia, and dangerous floods occurred in Georgia and Tennessee.

Snow-storms again occurred on the 19th and 21st through the Western United States, while heavy rain-storms extended from Montreal to New York, with wind-storms. On the 22d the ice-railroad track was taken up over the St. Lawrence at Montreal; on the 27th sleighs were out again at Montreal; while on the 30th snow-storms were general, and very stormy weather in western sections, and heavy rain- and wind-storms occurred at New York and other seaboard cities.

My prediction in this Almanac for 1881 relative to the 30th of March was: "On the 30th the weather will be blustery, with sleet and snow, possibly, at many points East and West."

And again my weather system worked well. "The storm was widespread. On the Atlantic coast the wind was the highest recorded during

MOON'S PHASES.	BOSTON.		NEW YORK.	WASH'TON.	CHARLES'N.	CHICAGO.
	D.	H. M.				
Third Quarter.	2	2 14 eve.	2 2 eve.	1 50 eve.	1 38 eve.	1 8 eve.
New Moon.....	10	6 35 eve.	6 23 eve.	6 11 eve.	5 59 eve.	5 29 eve.
First Quarter..	18	3 58 morn.	3 46 morn.	3 34 morn.	3 22 morn.	2 52 morn.
Full Moon.....	24	9 19 eve.	9 7 eve.	8 55 eve.	8 43 eve.	8 13 eve.

Day of Year.	Day of Month.	Day of Week.	
			The ancient Saxons, be it understood, Used in this month to kill and salt their food; The modern practice is the other way— Namely, to kill and eat on every day.
305	1	W	Onion-skins very thin,
306	2	Th	Mild winter coming in;
307	3	Fr	Onion-skins thick and tough,
308	4	Sa	Coming winter cold and rough.— <i>Gardener's Rhyme.</i>
309	5	S	22d Sunday after Trinity.
310	6	M	An early winter, a surly winter.
311	7	Tu	
312	8	W	If cranes appear early in autumn, a severe winter is expected.
313	9	Th	St. Martin's Day (11th). If the wind is in the south-west at Martin-
314	10	Fr	mas, it keeps there till after Candlemas.
315	11	Sa	
316	12	S	23d Sunday after Trinity.
317	13	M	
318	14	Tu	Much crying of peacocks denotes rain.
319	15	W	
320	16	Th	If dust whirls round in eddies when being blown about by the wind,
321	17	Fr	it is a sign of rain.
322	18	Sa	
323	19	S	24th Sunday after Trinity.
324	20	M	Hares take to the open country before a snow-storm.— <i>Scotch</i>
325	21	Tu	<i>Proverbs.</i>
326	22	W	When cats sneeze, it is a sign of rain.
327	23	Th	If spaniels sleep more than usual, it foretells wet weather.
328	24	Fr	
329	25	Sa	
330	26	S	25th Sunday after Trinity.
331	27	M	Bearded frost is a forerunner of snow.
332	28	Tu	
333	29	W	He that would have a bad day, maun gang oot in a fog after a frost,—
334	30	Th	<i>Scotch Proverbs.</i>

PREDICTIONS FOR NOVEMBER.—A good deal of rain and mild weather previous to the 10th, with but few fine days. 10th to 15th, snow-falls North and rains South, and moderate weather, except in proximity to 14th and 15th, when there may be lower temperatures; and on the 16th and 17th a "polar wave" is not unlikely to reach us from the North-west. Not much snow anywhere. Between the 18th and 21st a mild term is probable, with snow-flurries; sleet and rains according to locality, with gales on St. Lawrence River and lower lakes. This will end abruptly, and a cold snap is again probable after the 21st of the month. About 25th and 26th heavy rain-storms in southern and western sections, with rain- and snowfalls in Northern United States and Canada. The month will close with an intensely "cold dip" and snow-storms through Canada and Northern and Middle, as well as Western, United States.

the winter, and Long Branch and other seaside resorts suffered severely. In New York it rained heavily all day, and cellars in the lower portion of the city were flooded. In Virginia there was a tornado in the region about Danville, and numerous buildings were destroyed. In the West the storm was very severe. Columbus, O., had more snow than in any previous storm this season, and two feet deep was reported in various parts of the State."

Thus ended the terrible winter of 1880-81. The summer which followed (1881) was also a terrible one, owing to its heat and drought, and to the prevalence of forest-fires, which caused so great a loss of life and destruction of property. But space will not permit me to dwell further upon these back records, although such are of great interest and value for comparison in the future.

"OLD SAWS" NOT ALWAYS CORRECT.

Such "old saws" as—

"If there's ice in November that will bear a duck,
There'll be nothing after but sludge and muck;"

and again—

"If the ice bear a man before Christmas, it will not bear a mouse after;"

"If ducks do slide at Hollantide,
At Christmas they will swim;
If ducks do swim at Hollantide,
At Christmas they will slide,"—

were altogether knocked on the head by the November of 1880 and the winter which followed it. The *Montreal Witness* of the 22d November proclaimed: "As there was in the canal basin this morning ice about two inches thick, and consequently sufficiently strong for ducks to slide on, our weather outlook for Christmas and after does not appear, according to the popular English theory, to be most cheering."

But how very opposite were the facts in this case! Christmas came in with no balminess or mildness, but "on the wings of the storm" everywhere, not only throughout America, but in Britain as well, while in Western cities, in particular, exceptionally heavy snow-blockades occurred.

On the other hand, we must bear in mind that the winter of 1875-76 upheld these "old saws" in a very marked manner; for, although a sharp snap at the close of November (1875) ice-locked even the mighty St. Lawrence, Christmas and the New Year gave a return to mildness, rains, and slush, and the duck that did slide at Hollantide did actually swim on Christmas. Consequently, perhaps, after all, there have existed sufficient grounds for the "old saws" we have quoted.

MOON'S PHASES.		BOSTON.	NEW YORK.	WASH'TON.	CHARLES'N.	CHICAGO.
	D.	H. M.				
Third Quarter.	2	10 12 morn.	10 0 morn.	9 48 morn.	9 36 morn.	9 6 morn.
New Moon.....	10	10 53 morn.	10 41 morn.	10 29 morn.	10 17 morn.	9 47 morn.
First Quarter..	17	11 55 morn.	11 43 morn.	11 31 morn.	11 19 morn.	10 49 morn.
Full Moon.....	24	10 57 morn.	10 45 morn.	10 33 morn.	10 21 morn.	9 51 morn.

This month in turn Time's annual circle fills,
 And Christmas-tide brings solace for our ills;
 Yet prickly holly then our homes adorns, [thorns.
 Showing that Christmas pleasures have their

Day of Year.	Day of Month.	Day of Week.	
335	1	Fr	
336	2	Sa	Thunder in December presages fine weather.
337	3	S	Advent Sunday.
338	4	M	
339	5	Tu	If the sun shines through the apple tree on Christmas Day, there will be an abundant crop the following year.
340	6	W	
341	7	Th	
342	8	Fr	A green Christmas makes a fat churchyard.
343	9	Sa	
344	10	S	2d Sunday in Advent.
345	11	M	
346	12	Tu	If Christmas Day on Thursday be, A windy weather ye shall see.
347	13	W	Windy weather in each week, And hard tempests, strong and thick, The summer shall be good and dry.
348	14	Th	
349	15	Fr	
350	16	Sa	
351	17	S	3d Sunday in Advent.
352	18	M	If it rain much during the twelve days after Christmas, it will be a wet year.
353	19	Tu	He who scatters thorns, let him not go barefoot.
354	20	W	For want of a nail, the shoe is lost; for want of a shoe, the horse is lost; for want of a horse, the rider is lost.
355	21	Th	
356	22	Fr	
357	23	Sa	
358	24	S	4th Sunday in Advent.
359	25	M	Christmas Day.
360	26	Tu	Good words without deeds are rushes and reeds.
361	27	W	A good winter brings a good summer.
362	28	Th	Humility often gains more than pride.
363	29	Fr	He that eats till he is sick must fast till he is well.
364	30	Sa	
365	31	S	1st Sunday after Christmas.

PREDICTIONS FOR DECEMBER.—Generally cold weather up to about 3d. Very little snow in northern sections, where the weather will have been cold and dry. Between 10th and 15th a change to colder and stormy weather, with snowfalls and drifts probably in Canada and western sections of the United States and maritime provinces. Possibly a "cold dip" about the 15th and 16th in the North-west and Canada generally. Up to the 20th low temperature will probably continue in most sections, the cold extending far to the West and South. Milder weather between 20th and 25th. A rainy Christmas in many sections, and nearly everywhere mild. Moderate weather is likely to continue through the remainder of the month, bringing in a mild "New Year." This December is likely to be somewhat remarkable, and perhaps exceptional.

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LIVER COMPLAINT,

REMITTENT FEVER,

AND

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"SO THE STORY GOES."

WEATHER-PREDICTIONS SIMPLY DESCRIBED.

"WELL, I never thought the Yankees could be fooled like that," remarked an Anti-Vennorite a short time since in one of our principal Montreal hotels. "Here's a man writes to a newspaper, and says, 'We pin our faith to Vennor—in fact, swear by him; and rightly so, for we have his predictions pinned up, and they are almost invariably correct.' *Pshaw!*" And the self-important speaker, with an air of superheated wisdom and with profound pity depicted on his countenance for the "poor Yankees," quitted the apartment.

Now, it is pretty generally admitted that "Yankees" are not easily "fooled," and that any man who is able to hoodwink them is either a particularly smart individual or is in possession of some truth or truths not generally known. And further, when we come to look into the matter, we see no "hoodwinking" in the question at issue at all, but simply an honest effort made by an individual to forewarn and prepare his fellow-men for the weather that is approaching. That such an attempt has met with a certain measure of success is patent to all. The Yankees have not been "fooled," but with their usual smartness have already seen in the rough effort a germ of truth. Had there been no truth, all would have ere now ended in smoke; but, on the contrary, the predictions are daily being applied to the business-affairs of life, and are found to be of practical value. And what is this truth—this new truth? Simply the fact that the weather repeats itself, or occurs in waves of like duration at intervals of time. It has been thought that these waves consisted each of a period of three years, and were alternately "hot and dry" and "cool and wet;" but this theory is now proved untenable. One worker not many years ago attempted to establish the following rules—viz.:

1. When the number representing the year is even and exactly divisible by 3, then that year is the middle one of a triad of cool and wet years.
2. When the number representing any year is odd and exactly divisible by 3, that year is the middle one in a triad of hot and dry years.

Unfortunately, however, these apparently definite and simple rules do not stand the test of comparison with facts. Occasionally—as, for example, the year 1881 in the triad 1880, '81, '82—a group of years may appear to bear out the theory, but in the majority of cases it is otherwise, often exactly the reverse.

My own experience on this interesting and all-important question is somewhat as follows: In looking over the records of a long series of years for different sections of North America, I observe undoubted waves of like weather, such as cool and wet and warm and dry years, cold and snowy and mild and open winters. These periods are not of like duration, nor are they situated at equidistant intervals of time. Our chapter on "Weather Cycles" will demonstrate this fully. I note, further, that single, and what are termed "exceptional," years are of very exceptional occurrence, and are in general separated by long intervals of time. We are, for instance, all familiar with such expressions as "The oldest inhabitant does not remember so severe a winter in the past forty years;" "Such heat has not been experienced since the year 18—;" "This is the heaviest snowfall on record here." Such statements would seem to indicate that something out of the usual run had happened, something unexpected and remarkable.

Concerning these *single* and exceptional years I can come to no valuable conclusions. They dot the page of history at long and ever-varying intervals, and have occurred according to the fiat of Him who governs all things. They never can be predicted.

Next in frequency come *couplets* of similar years in regard to weather. These are of very much more frequent occurrence, but they do not appear to come round in any regular order. At one time I thought that cycles of ten years would "hit off" the majority of these *couplets* of years, but in this, I now see, no absolute dependence can be placed. Of still more frequent occurrence are the *triads* of years of like weather. These would appear to come round in something like more regular intervals during considerable periods of time, but again I notice other periods of great irregularity.

In view, then, of the foregoing facts, we have come to the conclusion that neither fixed rules, such as those just given, nor numerical calculations, will ever enable us to arrive at any tangible or certain method whereby the weather of seasons may be foretold.

But in arriving at this conclusion I did not sit down with folded hands and give up once and for all the weather question. No. If, I asked myself, the weather of years cannot be predicted for years in advance, why cannot we prognosticate for the *couplets* and *triads* of years as we first enter these? On this investigation I entered in the year 1875, when, after due reflection and a lengthened comparison, I sketched out the wet and open winter of 1876 in Canada, which proved so remarkable a "hit." This was based upon the belief that we had then entered a *couplet* of mild and open years, as afterward proved to be the case. In like man-

ner, and upon the same principle, in the autumn of 1879 I predicted for 1880, '81, and '82 winters of deep snow and cold, with intensely hot summers intervening. This was my first general prediction, and its correctness—as far as the period has progressed—has been amply testified to, although we have yet to experience what 1882 may bring forth.

In like manner, I from this early standpoint predict for 1883 and 1884 a *couplet* of years of great rainfall, with mild and open winters again.

Of course, the great difficulty connected with such a system of weather-prognostication lies in the ability of the student to hit off the *recurring couplet* or *triad* of years he has entered upon. For this no definite rules can be laid down, but past experience has to be called into play and every aspect of the question most minutely looked into. As I work I have constantly in my mind's eye the past histories of a long chain of winters and summers, with all their ups and downs. I note how the law of general compensation, both as to temperatures and precipitation, has been carried out. I pass in review a thousand or more minor details impossible to mention in order here, but all useful in their bearings upon the weather to come. I from time to time establish facts, which are afterward used as centres or points upon which to base my forecasts. In short, by unceasing observation I am intuitively informed of the general character of approaching weather, and the more definite and strong my impressions, the more confident am I that what I foresee will occur. Whether these remarks be looked upon as mere assertions or not is a matter of indifference to me at present. My argument or defence must rest in my successes and the acknowledgment of these by the public.

It has just been stated that certain facts, when established, are used as bases upon which forecasts are constructed. By this I mean that from time to time it is suddenly discovered that relationships exist between certain meteorological phenomena at very widely-separated points of our country. This relationship is judged of or determined by a close study and comparison of the weather-histories of the past twenty-five or fifty years for North America. Whether such relationships are or are not to continue cannot be possibly stated at the present stage of our investigation, but that they have existed in the past, and do exist at the present time, there remains no manner of doubt. One or two of these may be mentioned here by way of illustration.

During some of our most severe winter weather at Quebec, Montreal, and Ottawa we, in the majority of instances, hear of very open and mild weather along the Labrador coast and through Newfoundland, and, on the other hand, severe and hard winters in many cases while we are enjoying remarkably open and mild weather. Again, we seldom have

to record a wet season simultaneously for the north-west and the Provinces of Quebec and Ontario. On the contrary, very often, while we are suffering from drought in Canada and bordering States of the Union, Manitoba is growling over incessant rainfalls.

Yet again, we have noticed a relationship between our midsummer frosts in Canada and the hurricanes and cyclones of the Western and South-western States. Presuming upon the existence of such a relationship, I was successful in anticipating and predicting the storm and cyclone period of the 6th, 7th, and 8th of June last (1880) in the West, previously having predicted, on another principle, the frosts which occurred in Canada and New York State on the same dates.

In like manner, advanced frosts and snowfalls in Canada have their bearing upon dissimilar weather-conditions in other sections of North America, which may thus be predicted successfully.

Another case in point has just been brought before my notice while penning this article. News from a very northerly point—namely, Cape Chidleigh, situated ten miles to the northward of Cape Farewell, in the 60th circle of north latitude—informs us that the winter of 1881 in that direction was one of the mildest on record, the "oldest inhabitant" failing to recall to mind any winter less rigorous. During this same period we in Canada and the inhabitants of a large portion of the United States were being held in the merciless grip of a very severe winter. Such weather-conditions I have observed and noted before; and I may here state that in general they indicate a mild winter for the year following throughout Canada and the Northern and Middle United States. The existence of mild and open weather in the northern regions is generally conveyed to me by the non-appearance of several species of our northern birds in the general autumn migration. For instance, the arrival in the autumn of an unusual number of snow-owls and ptarmigan (white grouse) is a sure indication of—not always severity, but—heavy snows in northern latitudes, while the almost entire absence of such birds in the fall and winter months bespeaks, for the same parts, a mild and open winter, with moderate snowfalls. It may be further noted here that it is not the severity of the winters in the North that drives these birds southward—for what cold could hurt the snow-owl or ptarmigan, clothed or feathered as they are?—but rather scarcity of food, caused by the ground and shrubs being buried under deep snows. Again and again have I clipped paragraphs from our daily papers predicting the approach of a severe season, simply on the strength of the early arrival, in unusual numbers, of such birds as have been alluded to, and again and again have I flatly and successfully contradicted these predictions, knowing well that

the occurrence of an early and severe belt of weather in the northern regions was, or in the past had been, almost invariably followed by a rather mild and open winter throughout the Provinces of Ontario and Quebec in Canada and the Middle and Northern United States.

Further, as regards this new theory of "weather-relationships," a case in point is at present occurring in the hurricanes reported on the Atlantic on the 26th, 27th, and 28th days of August (1881), and which I gave notice of as far back as the 12th of July. This prediction was based upon the storm-and-cyclone period of the 29th and 30th of June (1881), it having been observed from past records of our weather that disturbances upon these latter dates have almost invariably been followed by similar disturbances along the northern Atlantic and British coasts in the neighborhood of the 25th and 26th days of the month of August. I might multiply these examples of weather-relationships, but space will not permit, and sufficient has already been written to give a clue to one of my systems of working or prognosticating. Whether or not this method may be said to come under the term "scientific" is of but trivial consequence, so long as it assists us to come to correct conclusions respecting the future; and I may add, in concluding, that I am acquainted with men, whose opinion in weather-matters is entitled to our greatest respect and confidence, to whom the word "science" is a perfect enigma.

METEOROLOGY, or modern weather-science, is not much more than a quarter of a century old, and dates from the employment of the telegraph in transmitting reports from different places of the state of weather existing at them at the same time. The word itself, however, is old, since it was used by Aristotle some three hundred years B. C. to name a treatise on water and earthquakes. It does not come, as some suppose, from the *meteors* or falling stars, but from the Greek words *meteoros*, "soaring," and *logos*, a "discourse." As a science it is of endless practical utility, not only in commerce, engineering, and agriculture, but also in pleasure-seeking.

It is not so many years since the study of the weather was considered a very vain pursuit. The wandering gales were either believed to obey no laws, or they had laws which it was hopeless to try to find out. Far otherwise is the view of educated people to-day; and those who make a special study of the subject assure us that only time, observation, and thought are necessary to enable us to comprehend the processes of the atmosphere, and to a certain extent predict the coming weather.

HOW THE CALENDAR WAS MADE.

THE word "almanac" is derived from the Arabic *al*, being the definite article, and *manah*, a verb meaning to "reckon." The great importance given to divination by means of the stars in Eastern countries in early times must have led to the construction of tables somewhat similar to those in our almanacs.

In the construction of an almanac—or rather that portion of it called a "calendar"—the divisions of time that naturally would suggest themselves would be the solar day, lunar month, and solar year; and, in fact, these divisions were recognized as far back as can be traced.

The subdivision of the day into twenty-four hours is also very ancient, although there was no uniformity as to the manner of computation. The ancient Egyptians, whose example in this respect is commonly followed to-day, commenced the civil day at midnight, and reckoned twelve hours before and twelve after noon-time. Astronomers, however, for the sake of convenience in computation, number the whole twenty-four hours, beginning at midday. The Chaldeans and modern Greeks have chosen sunrise for the commencement of the day, and the Italians, Bohemians, and others, sunset.

The arbitrary division of the week into seven days, although not recognized by the Greeks, and not introduced at Rome until about the year 400, dates back into the remotest antiquity in Eastern nations, being especially noticeable in the Mosaic record.

The earliest division of the year into months comprised twelve lunations of about $29\frac{1}{2}$ days each, making the year 354 days. This division had the very inconvenient result of transporting the beginning of the year to different seasons; and so, very early in the history of calendars, various expedients were adopted to make the months conform with the exact length of the year.

The Egyptians made the month 30 days exactly, and added 5 supplementary days at the end of the year. They kept no count of the additional quarter day and more, and thus the commencement of the year went back a little more than a day in every four years. Hence 1461 Egyptian years are equal to 1460 years of $365\frac{1}{4}$ days each.

The Greeks divided the month into three periods, as subsequently was done by the French for a short time.

The Roman division was most confusing and unscientific. The month had three epochs, named the *calends*, *nones*, and *ides*. The *calends* were the first days of the month; the *ides* began either on the thirteenth or fifteenth day; while the *nones* began on the ninth day before the *ides*.

The astronomical year consists of 365 days 5 hours 48 minutes and 46 seconds of mean solar time—a period which prevents a regular division into twelve or any number of months, and which cannot be recognized in its entirety as a civil year. From the number of days, which cannot be equally divided by twelve, and which cannot all be of the same length, and from the fractional day, it is impossible for all the civil years to contain exactly the same number of days.

The Roman year had only ten months, opening with March. In the reign of Numa, who is said to have succeeded Romulus B. C. 716, two months were added—January at the beginning, and February at the end, of the year; and some two hundred and fifty years later February was given its present position in the year. Then the months had 29 and 30 days alternately, making the year 354 days in all. But as it would never do to have the year consist of an even number of days, one more was added for luck. But even then the year was 10 days and nearly 6 hours short; and to restore the coincidence between the solar and civil year Numa ordered an additional, or intercalary, month to be inserted every second year between the 23d and 24th of February, and consisting of 22 and 23 days alternately. This made the mean length of the year $366\frac{1}{4}$ days; but as this caused an error of 24 days in as many years, it was ordered that every third period of eight years should contain only three of these months, consisting of 22 days each, thus reducing the mean length of the year to $365\frac{1}{4}$ days. But as the regulation of these intercalary months was not based on any fixed principle, and was left to the pontiffs, the years began to be lengthened and shortened in a most unaccountable manner, in order to hasten or postpone the elections for political purposes. As a result of these vaticinations, during the consulate of Julius Cæsar the civil equinox differed from the astronomical by three months.

In order to put an end to these irregularities, Cæsar, by the advice and with the assistance of Sosigenes, abolished the lunar year and intercalary month, and regulated the year entirely by the sun, fixing the mean length of the year at $365\frac{1}{4}$ days, and decreeing that every fourth year should have 366 days, as at present. In order to restore the months to their proper places, he ordered that the year before the first under the new system should have two extra months of 33 and 34 days respectively; and as the intercalary month naturally fell into that year, this memorable year contained 445 days, and is known as the “last year of confusion.” It was followed by the first Julian year, the forty-sixth before the birth of Christ.

Cæsar also ordered that the months whose numbers were odd, beginning with January, should have 31 days each, and all others 30, with the

exception of February, which should have 29, except every fourth year, when it should have its full number.

Unfortunately for the stability of his system, however, Julius Cæsar named the seventh month, which had anciently been denominated Quintilis, after himself. His grand-nephew, Cæsar Octavius, after assuming the title Augustus, also named a month after himself, his choice falling on the eighth month, which then had but 30 days. He therefore determined that his month should be as long as his uncle's, and, taking one day from February, gave it to August; and that three months of 31 days each might not come together, September and November were reduced to 30 days each, and 31 given to October and December.

Even now the calendar was not perfect. The excess of $365\frac{1}{4}$ days above a true solar year amounts to a day in one hundred and twenty-eight years, and as the centuries rolled on until the year 1582, when the calendar was corrected by Gregory XIII., he found it necessary to direct the suppression of ten days, changing October the 5th into the 15th. To correct the error in the Julian intercalation, which was found to amount to three days in every four hundred years, he ordered the intercalations to be omitted in all the centenary years excepting those which are multiples of 400. According to the Gregorian rule of intercalation, therefore, every year of which the number is divisible by 4 without a remainder is a leap-year, excepting the centennial years, which are only leap-years when divisible by 400. Thus, 1600 was a leap-year, but 1700, 1800, and 1900 are common years, while 2000 will be a leap-year, and so on.

Even according to this system the solar year is in excess by 26 seconds, which amounts to a day in 3323 years—an excess, however, that hardly need cause fear.

To return to the almanac, however. As has been stated, in the days of ancient Rome the preservation of the calendars was entrusted to the pontifices or priests, who arranged them somewhat after the manner of our modern almanacs. These calendars were known as the *fasti sacri*, or *kalendarii*, and were kept secret by the priests, who were consulted by the people about the dates of festivals and the proper times to institute legal proceedings. The secret, however, was discovered about the year 300 B. C. by Cn. Flavius, secretary to Appius Claudius, who, it may be said, published the first almanac when he exhibited the *fasti* on white tables around the Forum. From this time almanacs in various shapes seem to have been common.

Rude almanacs were in use in England toward the end of the seventeenth century. These were made of square blocks of hard wood, with notches along the corners corresponding to the days of the year. These

were called "clog almanacs." Manuscript almanacs have been traced back as far as the twelfth century, and the British Museum contains one for the year 1292.

From the time of Elizabeth till about a century ago the sale of "almanacs and prognostications" was monopolized by the universities of Oxford and Cambridge and the Stationers' Company jointly; but in 1775 one Carnan, who had disputed the right of the monopoly and published almanacs in three successive years, had the case decided in his favor in the Court of Common Pleas; since which time almanacs have not been uncommon.

ALMANACS.

ALMANAC, a book or table published from year to year, containing a calendar of the days, weeks, and months of the year, a register of ecclesiastical festivals and saints' days, and a record of various astronomical phenomena, particularly the rising and setting of the sun, the changes and phases of the moon, eclipses of the sun and moon, the times of high water at particular ports, etc. In addition to these contents—which may be regarded as essential to the almanac—it generally presents additional information, which is more or less extensive and varied according to the many different special objects contemplated in works of this kind. The derivation of the word is doubtful. The first syllable is the Arabic definite article; the rest of the word has been variously derived from the Greek *μήν*, a "month;" the Anglo-Saxon *mona*, "the moon;" and (which appears the most probable derivation) the Arabic *manah*, to "reckon." (*Encyclopædia Britannica*, Ninth Edition, American Reprint.)

OUR POST-BAG.

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ST. LOUIS, MO., July 16, 1881.

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"293 lbs."

HISTORICAL WEATHER-PERIODS.

IN times past, centuries before Meteorology became a science, unusual conditions of the weather from one cause or another assumed phases so important that they became embalmed in history. The following is perhaps the most complete record of noteworthy snow-storms and frosts yet published in one list; and, while it is impossible to corroborate each date and event, there can be no doubt that it is in the main correct, although there is no claim to its absolute correctness:

England was visited by a five months' frost in the year 220. Thirty years later the Thames was frozen over for nine weeks, and in 291 most of the English rivers were ice-covered for six weeks. But these seem trifling compared to the fact that in 401 the Black Sea was frozen over for twenty days. In 508 the Thames was frozen for two months; in 695 for six weeks, the ice being so strong that booths were built on it; and a frost beginning on October 1, 759, continued till February 20 in the following year. It is said that in 762 the Black Sea was frozen over from the terminal cliffs of the Caucasus to the mouths of the Dniester, Dnieper, and Danube, and that the quantity of snow which fell on the ice rose to the height of from thirty to forty feet, completely hiding the contour of the shores; and that on the breaking up in February the huge masses carried by the current into the Sea of Marmora reunited in one immense sheet across the Hellespont: no similar occurrence has since been recorded. In 806 the Rhone was frozen over, the thermometer ranging from 8 to 20 centigrade degrees below zero. In 827 hard frost continued in England for nine weeks, and in 923 the Thames was frozen for thirteen weeks. In 987, England was "frozen up" for one hundred and twenty days, and eleven years later the Thames was frozen for five weeks. On Midsummer Day, 1035, the corn and fruits were destroyed by a severe frost. In 1063 the Thames was frozen for fourteen weeks; thirteen years later the frost lasted from November to April; and in 1114 several wooden bridges were carried away by the ice. In 1133 the Po was frozen from Cremona to the sea. In 1234 loaded wagons crossed the Adriatic in front of Venice; in 1294 the Cattagat was frozen; in 1323 the Baltic was passable to travellers for six weeks; in 1324 it was possible to travel from Denmark to Lubeck and Dantzic on the ice; and ten years later the rivers of Provence and Italy were frozen, and the frost lasted at Paris for two months and twenty days. In 1407 frost lasted for fifteen weeks in England, and as it is recorded

that nearly all the small birds in the country died, we may be sure that there was plenty of snow as well as unusually intense frost; only the chroniclers do not seem to have regarded the snow of sufficient importance to honor it by any references. In 1434 the Thames was frozen down to Gravesend, the frost lasting for twelve weeks. In 1468 it was necessary to break up the wine with hatchets in Flanders in order to serve it out to the soldiers: no wonder that they "swore furiously" there. The winters of 1515, '44, '48, '64, '65, and '94 are recorded as the especially severe ones of the sixteenth century in Britain, but snowfalls are not especially referred to by the historian. In 1544 the wine was broken by hatchets in France. There was a succession of severe winters early during the seventeenth century in Europe, culminating in the years 1606 and 1607. We find on record the fact that in 1606 the snow was greater than ever before had been remembered, while in 1607, according to an old record, the winter was "such an extreme one for frosts as no man living doth remember or can speak of the like." The year 1608 was one of storms and tempests; and this, again, was succeeded by a season of heavy rains, so that year after year passed by with wretched harvests, and the dearth was great. In 1657 the Seine was frozen over; ten years later it remained ice-bound for thirty-five successive days. In 1674 snow fell in England for ten days. In the winter of 1683-84 the Thames was frozen over from December 20 to February 6. The ice-bridge was so substantial, and the wonder so marvellous, that a great business-street was built from the Temple to Southwark. Hackney-coaches plied there as in the city. Large sledges were exhibited as a wonder, and all manner of games played, including the old-time sport of bull-baiting. An ox was roasted whole over against Whitehall, and King Charles and the queen ate part of it; and it is said the jolly monarch passed the whole night on the ice. It might be remarked, *en passant*, that these events are commonly credited to the year 1688, when James and William were contending for the British throne. The winter of 1683-84 is said to have been "terrible cold." In the winter of 1708-09 there were three months of continuous "frost and snow" in England, and the Mediterranean was frozen from Marseilles to Genoa. In 1717 shops were again erected on the Thames, and two years later heavy snow-storms prevailed in many parts of Europe. On the border-lands of Sweden and Norway some 7000 soldiers are said to have perished. England was visited by nine weeks' severe frost in 1739, and the Seine was frozen over in 1742, '44, '66, and '68. Christmas Day, 1749, ushered in, in England, a most severe frost, continuing without intermission for several weeks. Travellers were frozen to death in coaches, and foot-passengers in London

stiffened on the streets. Ships, barges, and boats were sunk by the floating ice in the Thames. Those who could, confined themselves to their houses for fear of being frozen, but the fishermen, bricklayers, gardeners, and workmen generally assembled in hundreds and marched through the streets begging for food and clothing. In 1762 it snowed in England for eighteen days in succession. A succession of severe winters occurred toward the close of the century. Of these, that of 1784-85 was the most severe. In England the first snowfall was on October 7, 1784, and out of the one hundred and seventy-seven days that followed until April 2, there were but twelve during which it did not freeze or snow. During the winters of 1788, '94, and '98 nearly all the principal rivers of Europe were frozen—the Thames, Seine, Rhone, Elbe, and the Rhine being amongst the number. The winter of 1788-89 was marked by the extent and violence of its snowfalls, which traversed all Europe and caused great loss of life. February, 1799, was memorable for its great snow-storms, extending throughout the midland and eastern counties of England. The winter of 1812 will ever be remembered as that in which Napoleon's "Grand Army" retreated from Moscow amidst blinding snows, through overwhelming snow-drifts and intense cold, the soldiers falling by thousands on the way. These snowfalls also extended to England. In many parts of England the year 1814 was long known as that of the "great frost." Snow lay four feet deep in the streets of many of the towns, and country roads were absolutely impassable. The winter of 1820 also was remarkable for heavy snows, but that of 1836, so far as Great Britain was concerned, was marked by the worst snow-storm of the preceding one hundred years. After snowing heavily for two days in December, the wind increased on the night of the 26th to a hurricane, and by the morning from four to nine feet of snow had fallen, while in places drifts rose to heights varying from twenty to fifty feet. "The mails, all business, and correspondence were stopped nearly a week, until the multitudes employed had cut a way in the snow." In 1842 there were again heavy snowfalls and drifts in England, and mail-coaches were completely buried. One night's snowfall was sufficient to bury the coach, and it took, in one instance, seventy men, working all night, to cut a way through the drift and allow it to proceed on its journey. Another severe winter in Great Britain was that of 1866-67. Many trains were snowed up on northern railroads.

In the United States and Canada we have, as a matter of course, had great years of snowfall and extensive blockades of trains and general travel, but I can find no connected history of these extending from early dates to the present time. Those of most recent date were the

winters of 1875-76, 1879-80, and 1880-81. During the winter first mentioned, as all of us well remember, a tremendous snow-blockade of trains occurred throughout the Northern and Western United States. A letter at that time thus referred to the almost unprecedented snowfall: "It is estimated that between Boston and the West—Chicago, etc.—there have been at least ten thousand tons of merchandise blocked up at various points. On one single line alone more than sixty miles of freight-cars have been standing still, waiting for the snow to thaw. Between Buffalo and New York eight thousand goods-cars have been shunted off on to the sidings, the main lines being impassable through the snow. In Vermont, New Hampshire, and Maine the snow has been over sixteen feet deep, while Washington legislators have had to proceed to political engagements through two feet of snow. This unusual experience in the city named has been nearly equalled by deep falls of snow in several of the Southern States." A very similar blockade of snow occurred again in pretty much the same sections of country during the winter of 1880-81.

HAIL AND HAILSTONES.

THE immense magnitude of some hailstones, and the intensity of cold during the hottest period of summer requisite to freeze these in their descent to the earth, have never been satisfactorily accounted for. An explanation offered is, that they must have been originally formed at an altitude in the atmosphere where the temperature is greatly below 32°, and that, in consequence of their extreme coldness, they acquired magnitude during their descent by condensing on their respective surfaces the vapors contained in the electrified cloud and atmosphere through which they passed. The difficulty, however, is not altogether obviated by this conjectural explanation. In this country hail-storms seldom assume any remarkable appearance, but in some other countries, especially in the southern districts of France between the Alps and the Pyrenees, hail-storms are so violent, and the hailstones so large, as frequently to lay waste large districts of country. Of late years some very disastrous hail-storms have occurred in portions of the Western United States and Western Ontario. These storms have invariably been accompanied with thunder and a violent squall or whirlwind. Individual hailstones have been known to weigh as much as five ounces, but there are stories in existence of much heavier ones. These large particles of ice are seldom globular, but rather of an irregular and angular shape. Hail-storms generally occur during the hottest period of the year, and seldom during night or winter.

EARTHQUAKES.

THE most notable and disastrous earthquakes on record, it may be said, were those of Italy (526), when 120,000 persons perished, and of Sicily (1693), when 60,000 lost their lives. According to Gibbon, toward 542 each year was marked with the repetition of earthquakes of such duration that Constantinople was shaken above forty days—of such extent that the shock was communicated to the whole surface of the empire. At Antioch a quarter of a million persons are said to have perished. This period of earthquake and plague (542-547) was the period when the "superior planets were in perihelion, as they are now. Arabian and Persian chronicles record one hundred and eleven earthquakes between the seventh and eighteenth centuries, some lasting from forty to seventy days, and nearly always accompanied by winds or floods or terrible storms of lightning and thunder. Readers of the *Rélations des Jésuites* will remember the great earthquakes of 1663, which shook and tossed the earth for six months from Gaspe to Montreal, the rival of our own earthquake of 1811 in the Mississippi Valley. The severest of the earthquakes that fell in this region was that of November, 1755, an echo of the convulsion that tumbled down Lisbon—and saved the Pompay ministry, through the fact that the minister's house was almost the only one left uninjured and his family one of the few not bereaved of a member. Hein, in his interesting work on earthquakes, estimates that on an average two earthquakes a day occur on the earth. In 1870, though there was no severe single shock, 2225 houses were destroyed or greatly damaged in Italy, 98 persons killed and 223 wounded. The same shock may last for years; instance that of Vierge, in the Valais, which endured from July, 1855, to 1857. At Cabul thirty-three severe shocks have been felt in one day; at Honduras, in 1856, one hundred and eight were counted in a week; and at Hawaii, in 1868, two thousand shocks occurred in one month. Hein, it may be said in conclusion, opposes the theory of a connection between earthquakes and volcanic eruptions, and considers that of their coincidence with atmospheric phenomena as better supported by facts; for they are occasionally preceded or accompanied by thick and widespread fogs at seasons when fogs are not frequent, by sudden falls of the barometer, and by equally sudden changes of temperature. Their occurrence, however, in the majority of cases, coincides with normal meteorological conditions. Earthquakes are more frequent after sunset than in daytime, in autumn and winter than in spring. The influence of the moon is insignificant.

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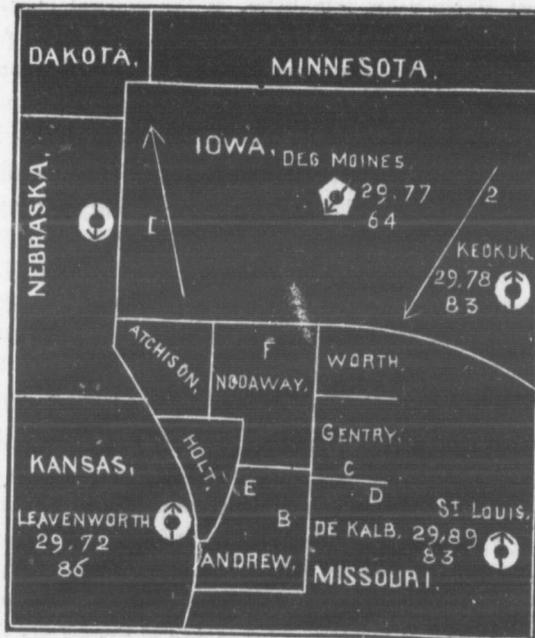
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THE COURSE OF STORMS.

IN weather-charts which embrace any considerable portion of the earth's surface two different systems of pressure are recognized. One system or set of systems is that of low pressure, which is marked off by concentric isobars, or lines enclosing pressures successively lower as the centre space is approached; the other set of systems is that of high pressure, which is marked off by roughly concentric isobars, enclosing pressures successively higher as the central space is approached. The areas of low pressure are generally found to be smaller in extent than those of high or average pressure, and the areas of high and low succeed each other after the same manner as the wave rolls along the ocean, ever on the point of emptying itself into the trough of the sea; which, however, constantly recedes as the crested, towering wave rapidly advances. Thus a storm one day may be found central in the Mississippi Valley, and in twenty-four hours will have whirled its way to the Connecticut, and in another twenty-four to St. John's, Newfoundland, advancing at the rate of thirty-six miles an hour, preceded and followed by areas of high pressure. A storm is simply an advancing whirlwind, the wind blowing in circuits of greater or lesser extent from east to west, or in a contrary direction to the hands of a clock, around an axis, and is caused by the constant struggle of the atmosphere to maintain an equilibrium of pressure. The general progress of storms is north-eastward, their origin usually being in the Far West, beyond the stations of the most westerly American observers; but some commence in the United States and Canada. When a storm begins in any district where observations are taken, it is noticeable that the line of minimum pressure does not come from the Far West, but commences with the storm and travels with it eastward. From the above observations it is evident that the direction of the storm-centre may be obtained by standing with the back to the wind, when the lowest barometer or centre of depression will be to the left in the northern hemisphere, and to the right in the southern: this rule holds universally. After the storm has begun it will increase until the barometer has reached its lowest reading, when a temporary lull occurs—the calm before the storm—and the clouds break and there are signs of clearing. But soon the western part of the oval reaches the observer, bringing more rain, while the winds are from the opposite quarter; the barometer rises rapidly, the temperature falls, and there is clearing weather.

ATMOSPHERIC CONDITIONS DURING CYCLONES.

REVERTING to the terrible cyclones in Iowa, Nebraska, Kansas, and Missouri on Sunday, June 12, an illustration of the general atmospheric conditions in that region on that day may be of interest :



Here we find an intelligible illustration of the fact that opposing currents of air strongly contrasted in temperature, encountering each other, establish a rotary movement from their collision, attended by the formation of hail, the induction of violent winds, and the precipitation of frequently torrential rain.

These disturbances are not, properly speaking, cyclones; they are merely local tempests, more or less violent, of cyclonic character, and the probability of their occurrence can only be predicted in a general way from the general weather conditions. In the illustration we find decided contrasts in temperature and opposing winds. The arrow (2) probably indicates the direction of the line of meeting. The arrow (1) points to a then existing area of low pressure, the region illustrated being in its south-east quadrant. The observations were made at 2.30 P. M., Cincinnati time. The despatches referring to North-eastern Missouri say

that between 4 and 5 P. M., local time, three disturbances dealt death and destruction in as many paths. The first started at Savannah (*a*), passing through Flag Springs (*b*) and King City (*c*) with great destructive force and entailing loss of human lives. Another started at Windsor (*d*); another in the vicinity of Rosendale (*e*). In all these instances their course was north-eastward, which an examination of the history of a great number of tornadoes in different portions of the United States during the past eighty years establishes as the general course—that is, eastward, with more or less deflection toward the north. And here a remark of some practical value might be suggested. Persons seeing a tornado approaching at some distance, and from the west, and bearing the above in mind, may reasonably hope to escape its vortex by running to the southward. The question whether these tremendous operations of Nature occur more frequently now than formerly is an open one. That our climate is undergoing modification, because these terrific and often fatal disturbances so frequently occur as far north as Kansas, Missouri, and Iowa, remains to be proven. Although tropical, it is not established that these storms were ever confined to the tropics. In the earlier and sparsely populated period of the country they very likely occurred, being produced by the same causes, which existed then as now, but there was then no telegraph and no newspaper to carry the news.

GLOBULAR LIGHTNING.

AN eye-witness states that in the summer of 1859, while a class of scholars of what was then known as the Old Brick Schoolhouse, of East Whitby, in the county of Ontario, were seated in the gallery in the classroom, a ball of fire about eight inches in diameter was seen to slip through the stovepipe, the bottom portion of which had been taken away with the stove, and strike the floor. It then moved in a zigzag direction, and finally disappeared, having done no harm, and leaving no evidence of its presence beyond very slightly scorching the floor where it first struck.

Mr. Fitzgerald, of county Donegal, Ireland, saw a globe of fire in the air descend gradually along the crown of a ridge and down into the valley, where it drifted along a boggy surface, occasionally disappearing in the soil, but reappearing farther on. It finally flew across the stream, and buried itself and disappeared in the peat-bank. Its total duration was about twenty minutes. It appeared about two feet in diameter at first, but gradually diminished to three inches. The sky was clear at the time. Wherever it touched the ground in its course it ploughed up the earth to a depth of several feet.

PLANTS AS WEATHER-PROPHETS.

HERR HANNEMAN, inspector of the Botanical Gardens at Proskau, Germany, has observed that several plants may be used as weather-prophets. He finds that *Convolvulus arvensis*, the common English bindweed, and *Anagallis arvensis*, the English pimpernel, spread their leaves at the end of wet weather, while the different species of clover contract them. *Stellaria media*, the chickweed, at nine o'clock in the morning, if the weather is clear, straightens its flowers, spreads its leaves, and keeps awake until noon; if, however, there is rain in prospect, the plant droops and its flowers do not open. If they open a little, the coming rain will be of short duration. The same with *Pimpinella saxifraga*. *Calendula pluvialis*, the marigold, opens between six and seven in the morning, and generally keeps awake until four in the afternoon. In such cases the weather will be steady; if, on the other hand, it has not opened by seven o'clock in the morning, you may that day look for rain.

Sonchus arvensis and *Oleraceus*, the hog-thistles, indicate fine weather for to-morrow if the head of the blossom closes for the night; rain, if it remains open. Again, rain is certain if *Hibiscus trionum*, the bladder ketmia, does not open its blossoms; if *Carduus cicalis*, the stemless thistle, closes; if clover and most allied kinds droop their leaves. Also, if *Lampsana communis*, the nipplewort, does not close its blossoms for the night; if *Draba verna*, the whitlow-grass, lets its leaves hang drooping; if *Galium verum* swells and exhales strongly; also, if birches scent the air. *Anemone ranunculoides*, the crowfoot anemone, tells the coming rain by closing its blossoms, while *Anemone mentaisa* carries its flowers erect when the weather is fine, and drooping when overcast.

WHEN clouds are observed to break up into fragments and gradually to dissolve by evaporation, it indicates that the region of the atmosphere in which they float is under-saturated with moisture, and prognosticates dry weather. On the contrary, after a continuance of dry weather, when clouds are observed to form, or, when previously formed, are observed to increase in bulk and density, and also when small, detached clouds unite together and form larger clouds, it indicates that the causes immediately instrumental in the formation of clouds are in operation, and prognosticates that wet weather will soon follow.

INSECTS AS WEATHER-PROPHETS.

PINEY FALLS, TENN., is wonderfully productive of insects, especially red or brown ants; in many places the ground seems to be full of these indefatigable little workers. Near our residence is a small piece of low, boggy ground, which is generally dry except during heavy rain. I have frequently seen these little bogs literally swarming with ants. While passing over this ground one warm, pleasant morning, I observed what appeared to be a reddish streak or stripe, not unlike a two-inch-wide ribbon, lying close to the ground, having several crooks or curves, leading from the bog to higher ground, ending in a heap of rubbish at a distance of perhaps twenty feet. On a close examination this dark stripe proved to be a moving mass of small red ants, all hurrying one way, making all possible speed; no stragglers were seen out of this uniform strip, which seemed to contain millions. After watching this extraordinary exodus for half an hour, the rear end began to shorten, until the last travellers disappeared in the heap of rubbish, at which time large drops of rain began to fall, although a half hour before the sky was clear, with no visible signs of rain. But it had now become clouded, the rain soon fell in torrents, and in two hours the bog was mostly submerged.

PREDICTING GRASSHOPPER-INVASIONS.

PROFESSOR ABBE has recently proposed a theory of the grasshopper-migration which is said to account for most of the phenomena that have been observed in connection therewith. He explains that the grasshopper is an insect at home and comfortable only in a rather dry atmosphere, and possibly a diminished atmospheric pressure; air that is either too dry or too moist is equally liable to make the insect uncomfortable, and in either case he seeks relief in flight, not knowing whither he shall go. Now, the very dry winds are the westerly winds, that bear him rapidly eastward to the Missouri and Mississippi Valleys. The very moist winds are the south and south-east winds of the Mississippi Valley, that bear him or his progeny in the next year back to his original breeding-grounds.

THE date of the spring arrival of swallows (not martins) at Quebec, Montreal, and Ottawa varies each year from the 10th to the 25th of April.

THE GREAT COMET OF 1881.

MANY late watchers throughout North America in the wee sma' hours of Thursday, June 23, 1881, were surprised at the vision of a large, bright comet very near the star Capella, one of the brightest in the heavens. On May 31 the emperor of Brazil had telegraphed to the French Academy of Sciences that one had been seen from the southern hemisphere, and three days later Dr. Gould, a United States astronomer stationed at Cordova, in the Argentine Republic, announced its discovery from there. At that time the comet was south of the sun, and could not be seen either from Europe or North America. On June 23 its presence near Capella was telegraphed throughout the world, and on Thursday night and Friday morning it was sought out by tens of thousands of eyes, and its position noted. It had travelled north—in the direction of its tail, so to speak—some three hundred thousand miles in the twenty-four hours. For a few days it grew brighter, and then gradually departed from sight, being visible to the naked eye altogether some forty-eight days, its rate of travel being some three hundred thousand miles daily. Its nucleus is estimated at one thousand miles in diameter; the inner head at the envelope, twelve thousand miles; the coma, vastly more than that; and the tail, at least four million miles in length.

It is asserted by astronomers that the heavens are full of comets, whose number is legion, only a small proportion of them coming within the range of the telescope. It is stated that during the Christian era some five hundred have been seen by the naked eye—an average of one to every four years; that during the present century, now in its third quarter, seventeen have been seen; while in the eighteenth century the number was thirty-six.

Perhaps the most popular description of a comet is that given by Professor Newcomb, who says: "Comets bright enough to be noticed with the naked eye consist of three parts, which, however, are not completely distinct, but run into each other by insensible degrees. These are the nucleus, the coma, and the tail. The nucleus is the bright centre, which, to the eye, presents the appearance of an ordinary star or planet. It would hardly excite remark but for the coma and tail by which it is accompanied. The coma (which is the Latin for 'hair') is a mass of cloudy or vaporous appearance which surrounds the nucleus on all sides. Next to the nucleus it is so bright as to be hardly distinguishable from it, but it gradually shades off in every direction. Nucleus and coma combined present the appearance of a star, more or less bright, shining

through a small patch of fog, and are together called the head of the comet. The tail is the continuation of the coma, and consists of a stream of milky light, growing wider and fainter as it recedes from the comet, until the eye can no longer trace it. A curious feature, noticed from the earliest times, is that the tail is nearly always turned from the sun. The extent of the tail is very different in different comets, that appendage being brighter and longer the more brilliant the comet. Sometimes it might almost escape notice, while in a great many comets recorded in history it has extended halfway across the heavens. The actual length, when one is seen at all, is nearly always many millions of miles. Sometimes, though rarely, the tail of the comet is split up into several branches extending out in slightly different directions. Telescopic comets do not always present the same aspect as those seen with the naked eye. The coma, or foggy light, generally seems to be developed at the expense of the nucleus and the tail. Sometimes either no nucleus at all can be seen with the telescope, or it is so faint and ill-defined as to be hardly distinguishable. In the case of such comets it is generally impossible to distinguish the coma from the tail, the latter being entirely invisible or only an elongation of the coma. Many well-known comets consist of hardly anything but a patch of foggy light of more or less irregular form. As a general rule, comets look nearly alike when they first come within reach of the telescope, the subsequent diversities arising from the different developments of corresponding parts. The first appearance is that of a little foggy patch without any tail, and very often without any visible nucleus. Thus, in the case of Donati's comet of 1858, one of the most splendid on record, it was more than two months after the discovery before there was any appearance of a tail."

THE COMET—SOME STATISTICS.

The comet which is now travelling north at a high rate of speed will soon be beyond the ken of the naked eye or the spectroscope. Investigation shows that since the Christian era, in round numbers, five hundred comets have been visible to the naked eye, and have been recorded. Besides these, nearly two hundred telescopic comets have been observed since the invention of the telescope. The following table gives the actual number of comets recorded as visible to the naked eye since the Christian era :

Years of our Era.	No. of Comets.	Years of our Era.	No. of Comets.
From 0 to 100.....	22	From 201 to 300.....	44
From 101 to 200.....	23	From 301 to 400.....	27

Years of our Era.	No. of Comets.	Years of our Era.	No. of Comets.
From 401 to 500.....	16	From 1201 to 1300.....	26
From 501 to 600.....	25	From 1301 to 1400.....	29
From 601 to 700.....	22	From 1401 to 1500.....	27
From 701 to 800.....	16	From 1501 to 1600.....	31
From 801 to 900.....	42	From 1601 to 1700.....	12
From 901 to 1000.....	20	From 1701 to 1800.....	36
From 1001 to 1100.....	36	From 1801 to 1875.....	16
From 1101 to 1200.....	26		

THE COMET IN SHAKESPEARE.

The following are all the passages in Shakespeare's works in which mention is made of the comet:

And wherefore gaze this goodly company,
As if they saw some wondrous monument,
Some comet of unusual prodigy?

—*Taming of the Shrew*, Act iii., s. 2.

By being seldom seen, I could not stir,
But like a comet I was wondered at;
That men would tell their children, "This is he."

—*1 Henry IV.*, Act iii., s. 2.

Comets, importing change of time and states,
Brandish your crystal tresses in the air,
And with them scourge the bad revolting stars
That have consented unto Henry's death.

—*1 Henry VI.*, Act i., s. 1.

Now shine it like a comet of revenge,
A prophet to the fall of all our foes.

—*1 Henry IV.*, Act iii., s. 1.

When beggars die there are no comets seen;
The heavens themselves blaze forth the death of princes.

Memphis Appeal.

—*Julius Cæsar*, Act ii., s. 2.

DURING frosty weather, the dissolution of mist and the appearance of small detached, roundish clouds of the *cirro-cumulus* kind in elevated regions of the atmosphere, and partly or wholly obscuring the sky, foretell that the termination of the frost is at hand.

VERY warm weather was experienced at Winnipeg between the 20th and 25th of April, 1881.

 WAVES OF WEATHER.

As in the ocean we may notice waves and counter-waves, "chop waves" and ripples, so is it with the weather. Here we have the periodical waves of the seasons, the "chop waves" of the months, and the ripples of the weeks and days. The first or great periodical waves of weather come around, if I may so speak, in a pretty regular, irregular, and regular order, while the "chop waves" and ripples, as a general rule, revel in their irregularity. Let me illustrate this somewhat. From our experience of weather in the past and from our observations of to-day we may or we can anticipate the exact nature of the weather of an approaching season. By the common-sense and natural law of compensation we see what Nature requires in order that her balance may be retained in the universe. Has there been a steady diminution of rainfall during the past couplet or triad of years? Then may we not expect a steady increase in the average of yearly rainfall for a somewhat similar (as to duration) period for the time to come? Or have we reached a point at which the average of precipitation has been greatly in excess of previous years—in fact, beyond what is likely to occur again for a lengthened period? May we not with considerable confidence assume for the approaching cycle of time a steady return to dryness, and perchance drought?

Yet again, has our past winter been one of severity as to temperature? May we not look for a rebound of temperature during the ensuing summer toward a more than usual average of heat? At any rate, most people will be willing to endorse this natural system of reasoning, as it appeals to common sense, and common sense supports it. Then, after all, is the true reading of the weather so easy a task? This, I would reply, depends upon a number of points which have always to be taken into consideration along with the common law of general compensation. I have stated or inferred that the weather comes around in periodical waves of regular and irregular duration and at regular and irregular periods. Thus, in the pages of this Almanac we have a writer giving rules, based upon three-year waves of weather, for the proper forecasting of "hot and dry" and "cool and wet" seasons. But how one-sided and unreliable has this theory proved! By his own words he was condemned, or, what is much about the same thing, his rules were. My own experience in the matter goes to prove that no one number or series of numbers can be fixed upon as representing the return of *waves* of weather. For a time these may appear to come around in a markedly regular manner, per-

chance just long enough to cause some venturesome prognosticator to attempt a forecast for an approaching week or month, when, with sudden perversity, an adverse wind springs up, and, sweeping across the ocean of the atmosphere, causes counter and "chop" waves of weather, very different from what had been anticipated. But I am here encroaching somewhat upon the subject of a preceding article in the Almanac, and therefore shall bring my remarks, under the present heading, to a close by simply stating that even the irregular periods of recurring weather may be anticipated by an intelligent observance of the laws governing our climatology generally, and by a common-sense course of reasoning and deduction, the details of which have already been treated upon in the article just referred to. Sound, light, electricity, and heat and cold, all come in waves, and so does the general weather. Thus, all we have to do is to know how these waves run and fluctuate in order to be able to anticipate approaching weather.

TOWN AND COUNTRY RAIN.

CONSIDERABLE attention has been recently given to the differences between the rain of the city and the country. The country rain is neutral, and is considered the best adapted for human consumption of any found above the earth, on the earth, or under the earth. The rain that falls in cities, on the other hand, is acid, corroding metals; stones and bricks and mortar crumble before it. Its evil effects are visible on every side, in paint, in all decorations, and in fact almost everything erected by man. The purest rain is that collected at the sea-coast, more especially at considerable heights, while organic matter in the air usually corresponds with the density of population.

THERE was a very frosty wave toward the end of July during the summer of 1880. A despatch from Mount Washington, July 29, says: "Snow commenced falling on the summit at noon to-day, and continued most of the time until two o'clock."

THE heaviest snowfalls during the month of January, 1881, at Montreal, occurred between the 9th and 10th and 21st and 22d days. The coldest day of the month was the 15th, when the mercury fell to 13° below zero.

FEBRUARY, in Canada, gave no snowfalls of any consequence. MARCH gave four "storm-periods," these being the 1st, 4th, 10th-11th, and 27th days.

"A WET SPELL."

ON first view we do not discover much profundity of wisdom in the old saying that "All signs of rain fail in dry weather." The observation readily occurs that if the signs did not fail the weather would not be dry; which is about the same as saying that dry weather is caused by want of rain. And yet, on twice thinking over the matter, we may find something in the old saying, after all. Rightly understood, it means that in calculating weather-probabilities due allowance should be made for the element of persistence of present conditions, whatever these may be. Who has not observed times when, the thirsty ground cracking and the crops suffering for want of rain, clouds would arise from east or west, giving apparent promise of the long-expected shower, and how frequently the clouds have passed away without a drop falling, making a total failure of all the signs? Drought long continued over an extensive region of country is due mainly to one or the other of two certain causes, or to both combined. Either the moisture drawn from the great tropical evaporating-pans, of which the Gulf of Mexico and the Caribbean Sea together may be taken as a notable example, passes away to other quarters; or, though actually brought overhead, is driven away and prevented from falling by powerful radiations of heat from an already dried and overheated surface. The former cause operates most in winter and at the beginning of a dry period; the latter most in summer and after drought has prevailed for some time. In these latitudes our rainy seasons come when there is at one and the same time a large supply of vapor in the upper air, brought by the winds from the great oceanic evaporating regions, and also a considerable degree of moisture on and in the ground and in the air below. These conditions, as might naturally be supposed, are precisely the opposite of those which bring extensive and long-continued drought. Now, the practical point to be noted is that at any time, when we witness repeated failures of apparent signs of rain or repeated failures of apparent promises of sunshine and dry weather, we have reason to conjecture the existence, over a very large area, of conditions tending to the further continuance of dry or wet weather respectively. In other words, we must allow for the probability, more or less, of the persistence of present conditions. It is want of due allowance for this element in the calculation that causes our weather-prophets so frequently to miss the mark when they try to prophesy several months ahead. Most of them appear to found their predictions chiefly on the law of compensation, and look for any excess of either heat or cold, rain or sunshine,

respectively, to be followed by a corresponding excess of its opposite. If one year we have a very open winter, for instance, next year we may expect a very severe one to make the balance even. Now, there is no doubt that the law of compensation holds good in the long run, for records going back many years show that the climate of this or that country has not sensibly changed in generations or centuries. But where the weather-prophets appear mostly to have failed has been in settling the precise time when the change from one extreme to another was to strike in and make itself felt.

A BALLOON IN A THUNDER-STORM.

ON August 1, 1875, Professor S. A. King ascended in his balloon at half-past four from Burlington, Iowa, at which time there was a terribly ominous-looking thunder-storm approaching. His balloon had been filled at the gas-works, two miles distant from the place of ascension, and had lost so much of its gas that its diminished buoyancy obliged him to start alone. His balloon, from the moment it left the ground, was rapidly carried toward the coming thunder-storm, and its ascent was also rapid until, in about seven minutes, he entered the cloud. Going up through this, just as he expected to reach the top there came right down in front of him, and apparently not more than fifty feet distant, a grand discharge of electricity. In an instant almost he felt the car lifted, the gas in the balloon suddenly expanded to overflowing, and the balloon was hurled through the cloud with unconceivable velocity, the car swinging back and forth at a terrible rate. All this was accomplished suddenly, and would have been over quickly, but before the car had time to stop oscillating another discharge of electricity occurred, and the same thing recurred again and again, until it seemed as though he should never escape. Each time the balloon would be expanded to its utmost, until finally it was thrown into the midst of the tremendous rain and was carried down rapidly. Gradually the gas was forced out, and the lower part of the bag doubled up into the upper part, forming a sort of parachute. He landed just twelve miles from his starting-place, evidently having retraced a portion of his track.

DURING a thunder-storm any person may calculate his distance from the place where an electric discharge occurs. As sound travels at the rate of 1142 feet per second, all that is necessary is to estimate 1142 feet of distance for every second of time that elapses between the flash of lightning and the instant one first hears the report of the thunder.

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RAINFALLS:

LAWS GOVERNING THEM.

IN general, the nearer the sea, the more elevated the situation, and, if not on a hill, the nearer its vicinity and the more prevalent the direction of the wind is from the sea—especially if while coming from the sea it blows from a southerly direction in the northern hemisphere, and from a northerly direction in the southern hemisphere—the greater is the annual amount of rain for the latitude. On the contrary, the farther distant from the sea, and the flatter and more low-lying the country—particularly if mountains intervene between the place of observation and the sea, and if these be distant from the place of observation at least twenty miles—the less rain ought to fall for the latitude.

The localities where the greatest amount of rain falls for the latitude are probably on mountains near the sea, of the height of 2000 feet and upward in warm climates, and 1500 feet and upward in temperate latitudes. Such mountains, owing to their annual rainfall, give birth to almost all, if not all, the large rivers of the world. Thus the summits of the Port Royal Mountains in the Island of Jamaica are enveloped in clouds, and rain there falls in torrents every forenoon even during the dry season, when in intertropical climates generally, except over or in the vicinity of mountains, clouds or rain seldom make their appearance.

Provided mountains be 6000 feet or more in height in temperate and cold climates, and 7000 feet or more in warm climates, the rain is almost wholly precipitated on their windward sides, and hardly any falls to leeward of them. The reason of this is, that all the denser species of clouds, which produce rain in champaign, low-lying countries, usually float at a lower altitude than 6000 or 7000 feet. This explains the reason why little or no rain falls in a large portion of Peru lying to the west and leeward of the Andes, whereas it rains almost incessantly on the eastern flanks of that elevated range of mountains.

If mountains varying in height from 1200 to 3000 feet lie immediately to the leeward of any place, or even suppose a place be entirely surrounded by such, instead of affording protection from rain they greatly increase its amount. Thus, at Keswick, in the north of England, which lies in a hollow, surrounded almost in every direction by, and not farther distant than a mile or two from, hills varying in height from 1000 to 3000 feet, more rain falls than in any other place that has yet been examined in England. The mean annual amount of rain which falls there is no less

than 67.5 inches; while at Upminster, in the flat county of Essex, unprotected by any hills, the mean annual amount is only 19.5 inches. To understand the explanation of the former of these cases, it must be recollected that the aqueous vesicles which form clouds do not descend to the earth's surface until their specific gravity is increased by the slow and gradual process of aggregation into what are called drops of rain. Though mountains, therefore, of moderate elevation may cause a precipitation of moisture from the atmospheric current while passing over them, still a large proportion of that moisture is wasted by winds to a greater or less distance in the form of clouds. Now, the excess of rain in the vicinity of mountains is partly, if not principally, owing to the influence of their elevated rugged summits and irregular intersecting valleys in producing a generally agitated state of the atmosphere and a conflict of aerial currents moving in somewhat different directions; and the mechanical effect of such circumstances is to drive together and congregate the component vesicles of clouds into drops of rain, and thereby accelerate their descent to the earth.

At a distance, however, of twenty miles or more to the leeward of hills of the above-mentioned moderate elevation the amount of water precipitated among the hills and returned to the sea by rivers essentially contributes to the hygrometric dryness of the atmosphere and to a diminution of the amount of rain. Before reaching this distance from the mountains the atmospheric current has again recovered its uniform unagitated progressive movement, and, unless the formation of clouds arising from some other cause be going on, the remainder of the clouds formed by the mountains, not previously precipitated to the earth's surface in rain, is by this time either dissolved, or so far in progress of dissolution by evaporation as to be incapable of producing rain.

The annual amount of rain that falls near the western coast of Britain is in general greater than what falls near the eastern coast. This is owing to the circumstance of air becoming usually hygrometrically drier the farther it passes over land, in connection with the fact of winds from the south-west being more prevalent in this island than winds from the south-east. Nor is a wind blowing from the sea toward the land necessarily a rainy wind, provided the land be warmer than the sea from which it blows. In such circumstances, as the atmosphere progresses over the land it gradually becomes warm and more under-saturated, and accordingly less apt to give birth to clouds and rain. This is the reason it almost never rains in Egypt, though the wind during a large proportion of the year blows from the Mediterranean. The aqueous vapor raised from that inland sea is carried with a northerly wind unprecipitated till

It comes into collision with the elevated mountains in the kingdom of Abyssinia.

As the aggregate amount of heat which the earth annually receives from the sun, and the amount of moisture annually evaporated from the earth's surface, probably undergo little or no variation, the aggregate amount of rain which falls on the earth's surface must in like manner be similar every year. Hence, in conformity with this principle, it may be inferred that wetter seasons than ordinary in one country or climate are simultaneously balanced by seasons proportionally drier than ordinary in some other country or climate. Such differences are wholly to be ascribed to variations in the direction and force of the winds in different seasons; and it is further probable that the differences in the prevailing direction and force of the winds are also regulated according to some compensating principles, by which different countries within a limited number of years are supplied with their relative mean proportions of rain.

RED AND YELLOW RAIN.

It is recorded, upon authentic evidence, that rain sometimes of a yellow and sometimes of a red color has on rare occasions been observed to fall in various places. In these cases the coloring-matter appears to have been derived from vegetable pollen of the colors described, transported by winds and precipitated to the earth along with showers of rain.

Snow of a red color has also been observed in Iceland and other places in the northern regions. The coloring-matter in one case was supposed to be a mixture of red ashes ejected during a volcanic eruption in the neighborhood. That vegetable pollen, one of the lightest and most transportable of all substances, should be carried by wind and precipitated to the earth by a shower of rain, is by no means unlikely; and to such an occurrence doubtless we may attribute the reports of "red rain-falls."

THE heaviest fall of rain on our globe takes place on the Khasia Hills, to the north-west of Calcutta, and amounts to 600 inches annually. The greatest amount that has fallen in the vicinity of Montreal in one hour was 1.110 inches.

Below is a table showing the annual mean amounts of rainfall at some of the principal stations on our globe. The amount is in inches and tenths;

	Inches.		Inches.
Vera Cruz.....	183.00	New Orleans.....	52.31
Bergen.....	89.00	Cincinnati.....	48.63
Rio Janeiro.....	89.00	Cambridge.....	44.48
Sierra Leone.....	87.00	Halifax.....	43.44
Canton.....	78.00	St. John, N. B.....	42.10
Bombay.....	75.00	Washington.....	41.20
Barbados.....	72.00	Baltimore.....	40.98
Madras.....	55.10	Albany.....	40.67
Cork.....	40.00	Quebec.....	39.10
Rome.....	30.86	Manchester.....	36.00
Brussels.....	29.96	Montreal.....	36.00
Naples.....	29.94	Liverpool.....	34.00
Oxford.....	27.10	Toronto.....	31.50
Paris.....	22.64	Aberdeen.....	28.87
London.....	22.00	New York.....	28.63
Stockholm.....	19.67	Dublin.....	24.00
Copenhagen.....	18.55	San Francisco.....	22.00
St. Petersburg.....	17.65	Glasgow.....	21.33

WHEN the whole sky is covered with clouds, their further formation and increase in bulk and density is indicated by their descent to a lower level, and their decrease by their ascent. Accordingly, when clouds begin to sit down upon the tops of hills, it prognosticates rain; and when they begin to rise above the hills, it prognosticates dry weather.

MIST extending upward from the surface of the earth on a summer morning foretells a dry, warm day. The country-people call such a mist *heat*, meaning thereby that it bespeaks a hot day. Such mists result from coldness, induced upon the earth's surface by the radiation of caloric during night, being propagated upward to the atmosphere in sufficient intensity to produce atmospheric over-saturation, and the precipitation of moisture in the forms of dew and mist. This only happens during calm, starry, cloudless nights, which are the usual concomitants, and among the most certain prognosticators, of dry, settled weather.

THE St. Lawrence River was lower during April, 1881, than at any previous time in a long period of years, while in the West and South-westward most damaging floods were experienced,

HOW MAN AND THE ANIMALS ARE AFFECTED BY THE WEATHER-CHANGES.

PERSONS subject to rheumatism frequently write to me relative to their barometric propensities, and did the limited space permit I could furnish many a laughable letter respecting the numerous indications of the weather given by the "twinges" of afflicted individuals. The fact is, that persons subject to rheumatism and like complaints become affected, probably upon hygrometric principles, when the atmosphere becomes damp, and feel relieved when dry weather returns. Such individuals may be considered living hygrometers.

What is a hygrometer? I know many of the readers of the Almanac will at once inquire. This instrument was briefly described in my Almanac for 1877-78 (page 97). The principle upon which it has been generally constructed is that a certain degree of affinity exists between moisture and air and moisture and many other substances—that one substance attracts another for which it has an affinity with proportionately less force according as it is more nearly saturated with it. Thus, a hair or piece of catgut may be used for hygrometric purposes, for either of these substances exerts a certain degree of attraction for moisture. Accordingly, as the air gets more nearly saturated, and exerts a proportionately less attractive force for humidity, these substances absorb a greater amount of moisture, and in so doing expand in thickness but diminish in length. On the other hand, when the air becomes drier than usual, and exerts a proportionately stronger attraction for moisture, a portion of humidity is abstracted from these bodies; and this, while it diminishes their thickness, increases their length. Hence the length of such or similar substances, fitted up and adjusted to a scale of equal parts according to various mechanical contrivances, has been employed as a measure of the dryness and dampness of the atmosphere.

Another principle upon which hygrometers have been constructed is based upon the different degrees of rapidity with which moisture evaporates and reduces the temperature of the evaporating surface, according to the state of the atmosphere as to humidity. As, however, I do not mean to describe meteorological instruments generally, this point need not be further enlarged upon. One object in remarking upon such instruments is, that if the principles of their construction be correctly understood a great mass of weather-indications held in esteem by the more

ignorant part of the population, and which depend upon the same principles, become intelligible.

We have already referred to the effect of the changes of weather upon man. Birds, beasts, insects, and reptiles are similarly affected. These, by their peculiar cries and instinctive movements (which have always been considered indications of wet or dry weather), evince that they likewise are affected with agreeable or disagreeable sensations according to the nature of the change approaching. But, in truth, the animals themselves know nothing of the cause of such sensations, and, though they manifest their sensations by peculiar cries and other traits, possess no foreknowledge of the weather. When we consider that perspiration is more or less obstructed by increased dampness, and that the feathers of birds and the hair covering the skins of beasts, as well as the muscular fibres of animals in general, are all better or worse hygrometers, it is no wonder that variations in the dryness or dampness of the atmosphere should give rise to agreeable or disagreeable sensations.

PLUMAGE OF BIRDS.—The plumage of birds is composed of materials which are bad conductors of heat, and are so disposed as to contain in their interstices a great quantity of air, without leaving it space to circulate. For such species as inhabit the colder climates a still more effectual provision is made; for under the ordinary plumage, which is adapted to resist the wind and rain, a still finer and more delicate down is found, which intercepts the heat which would otherwise escape through the coarser plumage.

What the plumage does for the bird, wool for the animal, and clothing for the man, snow does in winter for the soil. The farmer and the gardener look with dismay at a hard and continued frost which is not preceded by a fall of snow. For the snow is nearly a non-conductor, and when sufficiently deep may be considered as absolutely so. The surface may therefore fall to a temperature greatly below 32° , but the bottom in contact with the vegetation of the soil does not share in this fall of temperature, remaining at 32° —a temperature at that season not incompatible with the vegetable organization. Thus the roots and young shoots are protected from a destructive cold.

DROUGHTS AND RAINS.—During long hot, dry terms of weather in medium latitudes, or at distances from the sea, the vapors are carried over or past them, and condensed in the more northern latitudes or farther from the ocean. Medium latitudes from the sea receive a fair share of rain in moderate seasons. During long cold intervals the vapors are in all likelihood condensed before reaching far north or inland from the ocean.

STORM-SIGNALS AND THEIR MEANING.

SINCE the first of July the six signals of which cuts are given below have been in-use at Canadian lake-ports:

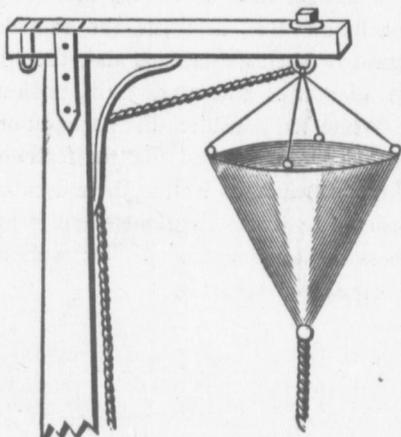


FIG. 1.

FIG. 1.—This signal, if displayed on Lakes Erie and Ontario, indicates "Moderate gale is expected, probably from the eastward." If displayed on Lake Huron and Georgian Bay, indicates a "Moderate gale is expected, probably from the southward."

FIG. 2, if displayed on Lakes Erie and Ontario, indicates "Moderate gale is expected from the westward." If displayed on Lake Huron and Georgian Bay, indicates "Moderate gale is ex-

pected, probably from the northward."

FIG. 3, if displayed on Lakes Erie and Ontario, indicates that "A heavy gale is expected, probably at first from the eastward." If displayed on Lake Huron and Georgian Bay, indicates "Heavy gale is expected, probably at first from the southward."

FIG. 4, if displayed on Lakes Erie and Ontario, indicates "Heavy gale is expected, probably at first from the westward." If displayed on Lake Huron and Georgian Bay, indicates "Heavy gale is expected, probably at first from the northward."

The cone when hoisted by itself indicates that it is expected that the wind will attain a velocity of 25 miles per hour, but will not exceed 35 miles, and it is not intended that an ordinarily well-found vessel should stay in port, but

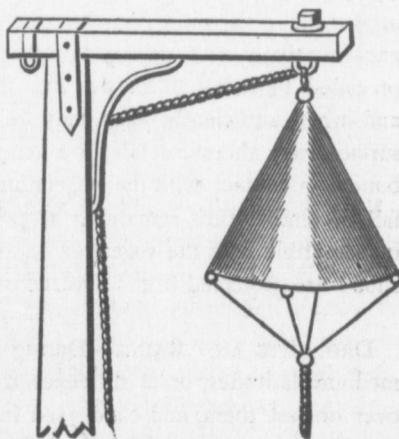


FIG. 2.

simply as a warning to mariners that strong winds are expected from the quarter indicated.

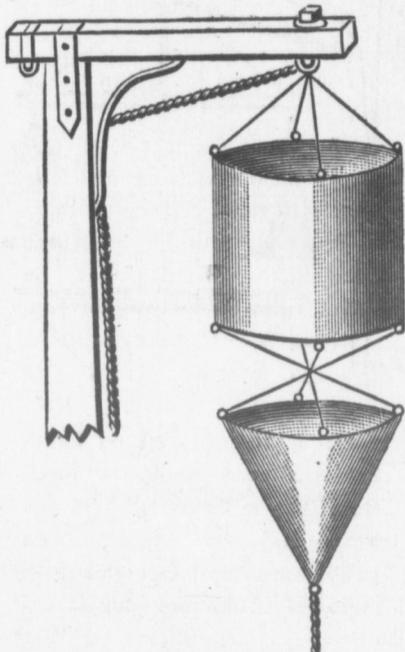


FIG. 3.

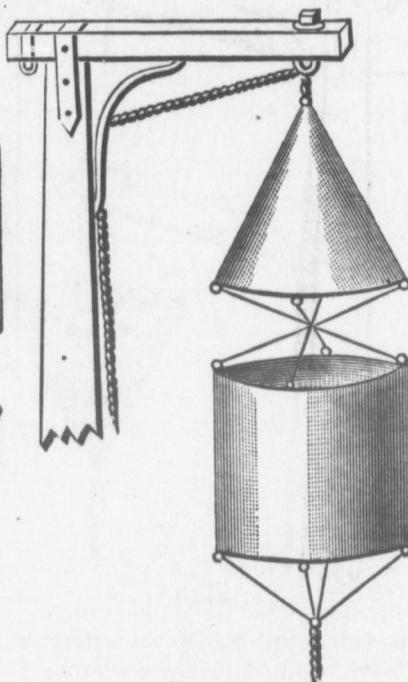


FIG. 4.

The drum will always be hoisted when the velocity of the wind is expected to exceed 35 miles an hour.

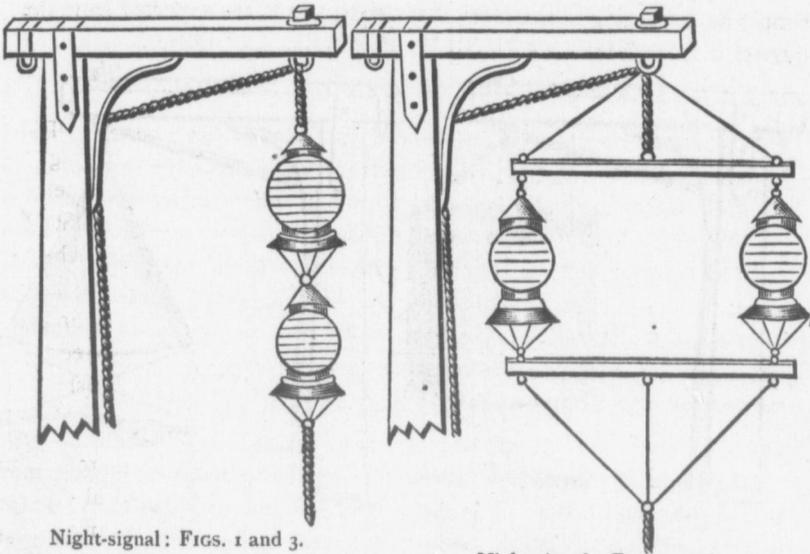
The night-signal corresponding to Figs. 1 and 3 is two lanterns hanging perpendicularly.

Night-signal corresponding to Figs. 2 and 4 is two lanterns hanging horizontally.

NOTE I.—Mariners will be able to obtain further information from drum-agents or by consulting the daily probabilities.

NOTE II.—Mariners must always bear in mind that the storm-signals are merely cautionary, and do not necessarily mean that a storm will occur at the place where the signal is displayed, but that one is expected either there or within such a distance that vessels leaving port would be liable to be caught in it.

NOTE III.—October and November are the months in which severe storms most frequently occur on the lakes. In these fall storms on Lakes Erie and Ontario the wind, almost invariably commencing at south-east, works round through south to west and north-west, the time



Night-signal : FIGS. 1 and 3.

Night-signal : FIGS. 2 and 4.

of the hardest blow being usually when the barometer begins to rise as the wind gets round to the west. On Lake Huron and the Georgian Bay the wind—though for the most part changing as on the lower lakes,—not unfrequently changes with great suddenness, chopping after a lull from south-south-east to north-west, and blowing hardest, as a rule, from the north-west.

NOTE IV.—The new signals are now used at all Canadian lake-storm signal-stations.

C. CARPMAEL.

Meteorological Office, Toronto.

THE periodicity of storms is a well-established fact, but an immense amount of data is desirable to ensure accuracy of prediction. The officers of our Bureau are often enabled to foresee the weather for a week or more, but not with sufficient certainty to warrant the publication of indications, although this enlarged usefulness is looked forward to as probable in the future. Meteorological observations were begun in the army in 1819, but until recently were not conducted scientifically; nor would the office feel justified in basing long predictions on private data, as a failure, especially at first, would discredit the work. Mr. Vennor's success, however, shows the value of existing observations, and offers a chance for private persons to make a reputation.

WASHINGTON February, 1881.

(Special Despatch to Evening Post, New York.)

THE TERRIBLE SUMMER OF 1881.

UNEXAMPLED DROUGHT ON THIS CONTINENT.

IN America the drought has been most extended and beyond comparison most destructive. It commenced in April, and after increasing in intensity in some places and diminishing in others in early summer, it uniformly developed over most of the settled part of the United States and Canada in the end of July into a steady, persistent dry period, which, under a burning sun, withered the crops yet standing, burned the grass brown, baked the soil, dried up most of the rivulets, and made the tinder-like forests an easy prey to the great fires which overspread for weeks a territory of half a million square miles with a pall of smoke and ashes.

1,500,000 DRIED-UP MILES.

The limits of the drought are not precisely known, but the area may be roughly described as an immense oval extending from Central Texas in the south-west to a little beyond Montreal in the north-east, and from Kansas and Iowa to Georgia on a north-west and south-east line. This includes a territory 1600 miles long by over 900 miles wide, embracing nearly 1,500,000 square miles—eight times as large as France, or thirteen times as large as Great Britain and Ireland. In Georgia, and also in Virginia and other central parts of this area, the drought was intense for between three and four months, while generally elsewhere it was only in July, August, and September that the effects of the dry weather were at all marked.

A VERY HOT SUMMER.

The heat of July and August was, however, extremely great, and in fact the summer as a whole was warmer than usual. In New Orleans in July the thermometer rose to 100°, which was the highest temperature in New Orleans for several years. Similar temperatures were reached in Ontario both in that month and in August, while in September the mercury rose to 100.5° at Hamilton, Ontario, 104° at Washington, 100° at New York, and 105° in the backwoods of Ontario. Toronto, which rarely suffers from the intense heats known elsewhere in Canada, recorded a temperature of 93°. At the Meteorological Station in Brantford the average daily maximum in July was 88.9° in the shade, and in August 88.7°, while the thermometer exceeded 90° in the shade on seven days in May, twenty-one in July, sixteen in August, and on many days in September. From the 16th of July for twenty consecutive days the mercury reached from 90° to 99.5° in the shade. The following shows the mean temperature for May, June, July, and August at Toronto and Brantford:

	May.	June.	July.	August.
Toronto.....	58.2°	59.3°	70.8°	69.9°
Brantford.....	63.1	62.3	74.5	73.1

September, up to the 25th, averaged in Toronto about 68°, and in part of South-western Ontario over 70°, while the highest temperatures equalled or surpassed those of July and August. In fact, no part of Europe and few parts of the tropics ever show higher temperatures than have been recorded in Ontario this summer.

RAINFALL IN ONTARIO AND NEW YORK.

The following tables show the rainfall for April, May, June, July, and August of this year at New York, Toronto, Brantford, Kingston, and Parry Sound, as well as the average for these months over a long series of years at New York and Toronto. The average for Toronto may be taken to be nearly the average of the three other Canadian towns:

	NEW YORK.		TORONTO.	
	Average Inches.	1881. Inches.	Average Inches.	1881. Inches.
April.....	3.80	0.95	2.65	0.09
May.....	4.51	3.20	3.23	2.22
June.....	4.13	5.35	2.81	2.55
July.....	4.03	1.25	3.09	1.84
August.....	4.74	0.86	2.98	1.51
Totals.....	21.21	11.61	14.76	8.21

	Parry Sound.	Brantford.	Kingston.
April.....	0.74	0.16	0.42
May.....	3.75	1.41	3.57
June.....	1.41	3.29	2.05
July.....	1.47	2.89	0.54
August.....	0.63	0.41	0.34
Totals.....	8.00	8.16	6.92

It will be noticed that in April and August the drought was intense at all these places, and although Toronto shows as much as half the average rainfall, two-thirds of that fell on one day—the 2d of the month. May, June, and July differed much at different places, the excesses which seem to interfere with the continuity of dry weather being due to occasional and purely local thunder-storms, with heavy precipitation. The distribution of the days of rain makes the drought still more formidable, for, excluding the days on which a few scattering drops fell from the reluctant

skies, two or three was the total number of days on which rain fell sufficiently heavy to penetrate an inch into the ground. In Brantford on only one day in August did any rain whatever fall, and after the beginning of that month the drought was unbroken.

EXTRAORDINARY FIGURES.

At Kingston the rainfall in July and August amounted to only .88 of an inch, or about five inches below the average. This rainfall, under the burning sun of a Canadian summer, could not, if it fell at once, keep the ground damp for a single day, and, falling on several days, barely sufficed to lay the dust for a few hours at a time. The actual shortage in the supply of rain was five hundred tons per acre in that district of country, or a sufficient quantity, for a township ten miles square, to form a lake of four thousand acres—that is, larger than Toronto Bay—and deep enough in any part to cover over head a man six and a half feet in height.

If the deficiency over the province at large be estimated at four inches for July and August, the deficiency in the Province of Ontario from Lake Nipissing southward would equal a lake forty miles long, twenty-five miles wide, and twenty feet deep.

In the Mississippi Valley, and over most of the United States affected by the drought, the rainfall is usually much greater than in Canada, and if the average deficiency for the four months be assumed to be only ten inches, the lack of rain on the area of 1,500,000 miles reaching from Texas to Montreal would equal the total area of Lakes Superior, Michigan, Huron, Erie, and Ontario, and several of the smaller lakes added, with an average depth throughout of fifteen feet, or sufficient to float the largest vessel that navigates the lakes. If gathered together with a depth of one hundred and twenty feet—the average depth of Lake Erie—a lake would be formed somewhat larger than that lake, which is two hundred and forty miles in length by from thirty to sixty broad.

Another comparison will suffice. The total deficiency over the area referred to was 1,100,000 cubic miles of water. Niagara Falls at flood-height, discharging at the rate of one million cubic feet of water per second, would require one whole year to pour this vast quantity of water over into the raging chasm below.

With so enormous a deficiency in the rainfall it is not to be wondered at that Lake Ontario has fallen rapidly during the past month, and, as may be seen at the island opposite Toronto, is now eighteen inches lower than for many years, if not lower than ever before recorded. The absence of a Lake Erie full of raindrops has dried up the springs of half a continent, narrowed broad rivers to lines of dark water flowing shallowly

between broad borders of dry, pebbly river-bottom, and reduced many a rushing stream to a series of stagnant pools. The air has danced and shimmered in the fierce heat over the browned plantations of Louisiana and pastures of Muskoka, and thousands of wearied cattle have perished of thirst; and, worse than all, the clouds of smoke that have hung month after month over the flaming forests of a dozen States and provinces have but been the harbingers of a fiery destruction which has brought desolation and death to many a once-happy family.

WET WEATHER IN MINNESOTA.

Strange to say, while the eastern part of the continent has been parched by drought, Minnesota has been suffering from excessively wet weather, and California from unusual cold. No doubt full information would show similar eccentricities of the weather in other countries.

Bad as has been the record, it might have been worse. April was cold, and June unusually so; otherwise, not only the root-crops and Indian corn would have suffered, but the wheat-crop would have been a failure. The coolness of these months, combined with the moderation of the drought in May and June, had a beneficial effect on the latter crop, and made the year a tolerably prosperous one to the agriculturist.

1876 AND 1868.

Dryer months have been known before. August, 1876, was warmer than the past August, and no rain whatever fell, but the drought was by no means so extended as this season nor of so great duration. The summer of 1868 was hotter—except in September—and July in Hamilton averaged 80° in the shade, with a maximum of 106.3° , or higher than it has been known in either New Orleans or Calcutta; but the rainfall of June, July, and August was quite equal to that of the same months this year, and the drought was preceded by a May in which at Toronto 7.67 inches of rain fell, and followed by a September with 4.24 inches. This year September has only been exceeded in dryness by April and August. Neither the summer, which commenced about May 3d, nor the drought, has yet ended in Ontario, though in Ohio, Kentucky, and the Western States heavy rains have fallen. ●

PREVIOUS DROUGHTS.

Of previous years in this century, 1854 was most remarkable for widely-extended and prolonged drought, but the rainfall was greater than in this summer. The year 1819 was excessively dry over a limited area; and in fact every few years there have been parts of the continent more or less

affected by a damaging lack of rain. An extended drought, such as has been experienced this summer, may not be known again on this continent for a century, but, bad as it has been, few would exchange it for the wet seasons, and consequent bad harvests, Great Britain experiences every few years.

SUMMER RECORD (1881) IN EUROPE.

HEAT AND DRY WEATHER IN EUROPE.

In Europe nearly every country has been affected, and the intense heat which has prevailed here was also felt there. In Switzerland the peasants had to look to their vintage, which promised an unusual yield, to repair the losses to grain through the long drought. In Italy great heat combined with the usual dryness of summer to wither the vegetation and increase the mortality. At Naples, in the end of August, the mercury reached 98° in the shade, a higher temperature than had been known in twenty-one years. At Rome 101° were reached. France and parts of Russia, Hungary, Austria, and Germany also report drought and heat, though not of a very serious nature.

EXTRAORDINARY WEATHER IN BRITAIN.

In Britain, strange to say, the drought of the earlier part of the season was such that with the usual heat of a Canadian summer the harvest would have been a total failure. As little as 0.96 of an inch of rain, or less than a quarter of an inch per month, is reported for the four months April to July, inclusive. Although in July in a spell of a few days the mercury went up to 93° at Greenwich, the summer, as usual, was not very warm, and consequently the small rainfall was sufficient to produce an unusual promise for harvest. The farmers were jubilant, but down came the August rains, and when Canada and the United States were anxiously waiting for the rain which a brazen sky refused to drop, and were sweltering among the nineties and hundreds, Britain was

ALMOST INUNDATED.

Midday temperatures for weeks were below 60° , and in the great wheat-counties the thermometer often fell below 40° , and on one occasion to within half a degree of the freezing-point. The August rainfall at London was 5.50 inches, and ample atonement was made for the drought.

Such conditions as the foregoing, according to Mr. Vennor, indicate a rather severe winter for England, Ireland, and Scotland.—Pubs.

MYSTERIOUS LIGHTS IN THE GULF OF ST. LAWRENCE.

THE mysterious lights in the Gulf and the lower St. Lawrence, which are firmly believed by the fishermen to be a warning of great tempests, were unusually brilliant during the fall of the year 1880. It is said to be a fact, established by the experience of a century, that when these lights blaze brightly in the summer nights the fall is invariably marked by great storms. They give the appearance to spectators on the shore of a ship on fire. The heavens behind are bright, and the clouds above are silvered by the reflection. The sea for half a mile is covered with a sheen as of phosphorus. The fire itself seems to consist of blue and yellow flames, now dancing high above the water, and then flickering, falling, and dying out, only to spring up again with fresh brilliancy. If a boat approaches, it flits away, moving farther out, and is pursued in vain. The lights are plainly visible from the shore from midnight until two hours in the morning. They appear to come from the sea shoreward, and at dawn retire gradually, and are lost in the morning mist. Paradis, the French pilot who took charge of the British fleet under Admiral Sir Hovenden Walker when he sailed up the St. Lawrence from Boston to seize Quebec in 1711, declared he saw one of these lights before that armada was shattered by a dreadful gale on the 22d of August. The light, he said, danced before his vessel all the way up the Gulf. Every wreck that has taken place since Sir Hovenden Walker's calamity has been preceded, if tradition is to be believed, by these mysterious lights, or rather they have warned the mariner of the fatal storm. In 1767 the French war-ship *La Tribune* was lost with 300 souls. In 1805 the British transport *Navas* went down with 800. In 1831 the emigrant-ship *Lady Sherbrooke*, from Derby to Quebec, was lost, only 32 out of 273 passengers being saved. In 1847 nearly 300 Irish emigrants were lost with the brig *Carrick*, and 240 more in the *Exmouth*. By the wreck of the Hungarian 225 souls perished on the 16th of February, 1860; 35 by the Canadian on the 4th of June, 1861; and 237 when the Anglo-Saxon was lost off Cape Race on the 27th of April, 1863. Fishing-boats and coasters unnumbered have also gone down with all hands, leaving no sign. The following clipping, taken from a local paper last autumn (1880), embodies a prediction which has been remarkably fulfilled: "This fall, if the lights are to be believed—and the Gulf fishermen say they cannot lie—storms of unexampled fierceness will rage from the autumnal equinox until the winter is passed."

TAKING COLD.

THIS vague "household word" indicates one or more of a long, varied train of unpleasant affections, nearly always traceable to one or the other of only two causes—*sudden change* of temperature and *unequal distribution* of temperature. No extremes of heat or cold can alone effect this result; persons frozen to death do not "take cold" during the process. But if a part of the body be rapidly cooled, as by evaporation from a wet article of clothing or by sitting in a draught of air, the rest of the body remaining at an ordinary temperature, or if the temperature of the whole be suddenly changed by going out into the cold, and especially by coming into a warm room, there is much liability to trouble. There is an old saying "When the air comes through a hole, say your prayers to save your soul;" and I should think almost any one could get a "cold" with a spoonful of water or the wrist held to a key-hole. Singular as it may seem, sudden warming when cold is more dangerous than the reverse; every one has noticed how soon the handkerchief is required on entering a heated room on a cold day. Frost-bite is an extreme illustration of this. As the Irishman said on picking himself up, it was not the fall, but stopping so quickly, that hurt him. It is not the lowering of the temperature to the freezing-point, but its subsequent elevation, that devitalizes the tissue. This is why rubbing with snow or bathing in cold water is required to restore safely a frozen part; the arrested-circulation must be very gradually re-established, or inflammation, perhaps mortification, ensues. General precautions against taking cold are almost self-evident in this light. There is ordinarily little, if any, danger to be apprehended from wet clothes so long as exercise is kept up, for the "glow" about compensates for the extra cooling by evaporation. Nor is a complete drenching more likely to be injurious than the wetting of one part. But never sit still wet, and in changing rub the body dry. There is a general tendency, springing from fatigue, indolence, or indifference, to neglect damp feet; that is to say, to dry them by the fire; but this process is tedious and uncertain. I would say, especially, off with the muddy boots and sodden socks at once; dry stockings and slippers, after a hunt, may make just the difference of your being able to go out again or never. Take care never to check perspiration. During this process the body is in a somewhat critical condition, and a sudden arrest of the function may result disastrously—even fatally. One part of the business of perspiration is to equalize bodily temperature, and it must not be interfered with. The secret of much that is to be said about *bathing* when heated lies here. A person overheated, panting it may be, with throbbing temples and a dry skin, is in danger, partly because the natural cooling by evaporation from the skin is denied, and this condition is sometimes not far from a "sunstroke." Under these circumstances a person of fairly good constitution may plunge into the water with impunity—even with benefit. But if the body be already cooling by sweating, rapid abstraction of heat from the surface may cause internal congestion, never unattended with danger. Drinking ice-water offers a somewhat parallel case; even when stooping to drink at a brook when flushed with heat, it is well to bathe the face and hands first, and to taste the water before a full draught.

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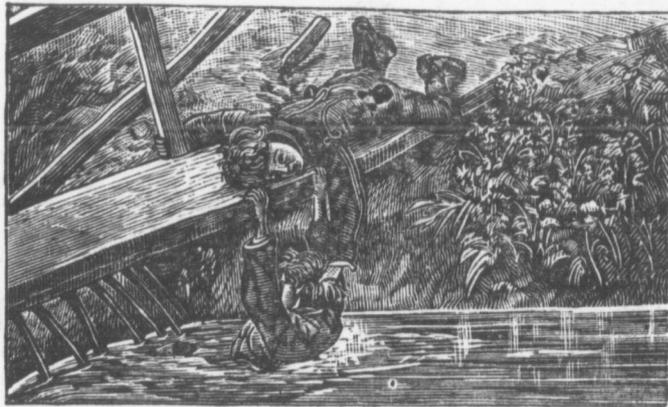
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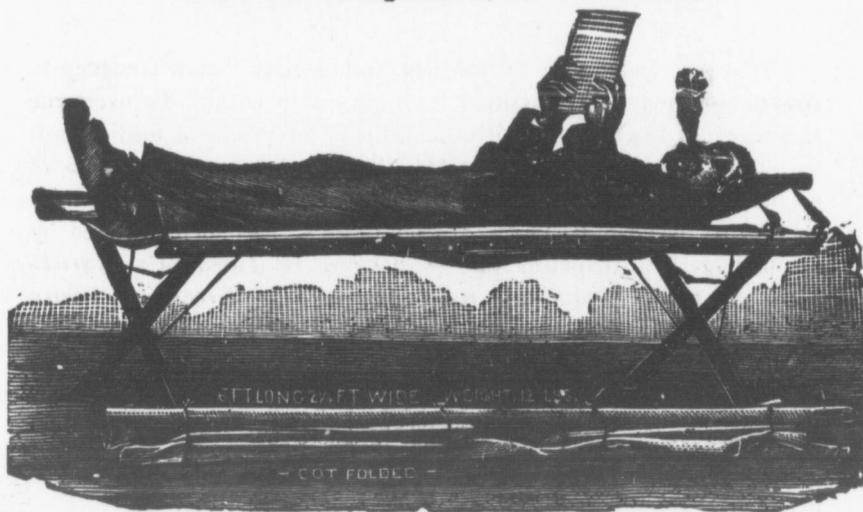
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