

SMITH'S
PLANETARY ALMANAC
AND
WEATHER GUIDE.

1888.



1888.

CONTAINING A GENERAL FORECAST FOR THE YEAR; AN OUTLINE, SKETCH
OF THE WEATHER BY MONTHS; THE

WEATHER FOR EACH WEEK;

A PLANETARY EPHEMERIS CALCULATED TO MONTREAL MEAN TIME;

LUNAR INFLUENCE ON VEGETATION,

WITH TABLES FOR SOWING ACCORDING TO IT IN ALL LATITUDES; A LIST OF
MOONLIGHT EVENINGS; COPIOUS ASTRONOMICAL NOTES; SPECIALLY
WRITTEN ARTICLES BY OTHER SCIENTISTS, ETC.

BY

WALTER H. SMITH,

PRESIDENT OF THE ASTRO-METEOROLOGICAL ASSOCIATION; AUTHOR OF
Seybold Melvin, or the World of Mars; EDITOR OF *Astronomy and
Meteorology*; AUTHOR OF *Vennor's Almanac, 1885*; FORMERLY
ASSOCIATE EDITOR OF THE *Weather Bulletin*, ETC.

MONTREAL, M
1887.

ESTABLISHED 1842.

CHARLES ALEXANDER,
Confectioner.

COFFEE AND DINING ROOM.

BREAKFAST,

DINNER

and

TEA.



BREAKFAST,

DINNER

and

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219 St. James Street,
MONTREAL.

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ELEVENTH ANNUAL ADDRESS.

The last issue of SMITH'S PLANETARY ALMANAC may be said, without fear of contradiction, to have contained what proved, in all probability the most reliable forecasts of the weather for a year in advance, ever made and printed. Their accuracy has been universally allowed on all hands, until persons from whom I never expected fair play, much less encouragement, admitted that "there certainly must be a good deal of truth in the system pursued by Smith." Asked to explain my system, I have, by public lectures on "How I Forecast the Weather," as well as printed explanations in my Journal, *Astronomy and Meteorology*, done my best to meet the demand, proving repeatedly to the unprejudiced what I said in my preface for 1886, that "the Weather Forecasts are no more the result of guess work than are the Astronomical Calculations."

Last year, I asked my friends to double my circulation; and then to double it again, if they wished this book to pay. As a step towards the desired object, I have to thank them for increasing the circulation by about 1,500 copies in 1887 as compared with 1886. Keep on, friends, and, in a year or two you will have the satisfaction of knowing that your old weather student is at length getting paid for his work.

Since publishing my last annual, very encouraging progress has been made as regards the Astro-Meteorological Association, in fact, never before was this organization—of which I am proud of being the founder and President—possessed of such a large membership roll, neither had we ever before so much interest taken in our work.

During the spring of 1887, owing to the discontinuance of a journal to which I was a regular contributor, I was induced to commence the issue of *Astronomy and Meteorology*, a unique monthly, published at the modest figure of \$1.00 per annum, containing, amongst other things, my extended

forecasts of weather by months and weeks—in a more comprehensive form than is possible in the space of my ALMANAC;—full reports of the meetings of the Astro-Meteorological Association—with all papers read—and my hitherto unpublished romance, “Seybold Melvin; or, the World of Mars.” Filled with the fullest and newest astronomical, meteorological and other scientific notes, with a page devoted each month to most interesting queries and replies, I recommend *Astronomy and Meteorology* to the support of my readers. There is nothing else like it on this continent.

Encouragement, thus far, has helped me to make most correct forecasts. An increase of encouragement will, I trust, induce even more careful work, and, if possible, more perfect forecasts.

WALTER H. SMITH.

31 Arcade Street, Montreal.

ASTRONOMICAL AND OTHER NOTES.

FIXED AND MOVABLE FESTIVALS, 1888.

New Year's Day— } Jan. 1	Pentecost—Whit- } May 20
Circumcision. }	Sunday. }
Epiphany “ 6	Birth of Queen Victoria.. “ 24
Septuagesima Sunday.... “ 29	Trinity Sunday “ 27
Quinquagesima }Feb. 12	Corpus Christi..... “ 31
Shrove Sunday. }	Accession of Queen } June 20
Ash Wednesday..... “ 15	Victoria. }
First Sunday in Lent.... “ 19	St. John Baptist— } ... “ 24
Washington's Birthday.. “ 22	Midsummer Day. } ... “ 24
St. DavidMar. 1	St. Peter and St. Paul... “ 29
St. Patrick..... “ 17	Dominion Day.....July 1
Annunciation—Lady Day “ 25	Independence Day..... “ 4
Palm Sunday..... “ 25	Michaelmas.....Sept. 29
Good Friday..... “ 30	All Saints Day.....Nov. 1
Easter Sunday.....Apr. 1	Birth of Prince of Wales.. “ 9
Low Sunday..... “ 8	St. Andrew “ 30
St. George..... “ 23	First Sunday in Advent..Dec. 2
Rogation Sunday.....May 6	Conception B. V. M..... “ 8
Ascension Day— }	St. Thomas “ 21
Holy Thursday. }	Christmas Day..... “ 25

PRINCIPAL ARTICLES OF THE CALENDAR.

Golden Number..... 8	Dominical Letters.....A.G.
Epact..... 17	Roman Indiction..... 1
Solar Cycle..... 21	Julian Period.6601

CHRONOLOGICAL ERAS.

The first day of January of the year 1888 is the 2,410,638th day since the commencement of, and the 6601st year of the Julian Period.

The year 1888 is the 7396-97 of the Byzantine Era, the year 7397 commencing on September 1st.

The year 5648-49 of the Jewish Era, the year 5649 commencing on September 6th, 1888, or, more exactly, at sunset on September 5th.

The year 2641 since the Foundation of Rome, according to VARRO.

The year 2635 since the beginning of the Era of NABONASSAR, which has been assigned to Wednesday, the 26th of February of the 3967th year of the Julian Period; corresponding, in the notation of chronologists, to the 747th; and in the notation of astronomers, to the 746th year before the birth of CHRIST.

The year 2664 of the Olympiads, or the fourth year of the 666th Olympiad, commencing in July, 1887, if we fix the Era of the Olympiads at $775\frac{1}{2}$ years before CHRIST, or near the beginning of July of the year 3938 of the Julian Period.

The year 2200 of the Grecian Era, or the Era of the Seleucidæ.

The year 1604 of the Era of Diocletian, and the year 2548 of the Japanese Era.

The year 1306 of the Mohammedan Era, or the Era of the Hegira, commences on September 7th, 1888.

Ramadân (Month of Abstinence observed by the Turks) commences on May 12th, 1888.

The 113th year of the Independence of the United States of America begins on July 4th, 1888.

The 22nd year of the Confederation of the Provinces of the Dominion of Canada begins on July 1st, 1888.

COMMENCEMENT OF THE SEASONS.

Montreal Mean Time.

The Sun enters ♈ and SPRING begins March 19th, at 11h. evening.

The Sun enters ♋ and SUMMER begins June 20th, at 7h. evening.

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The Sun enters ♈ and AUTUMN begins September 22nd, at 10 h. morning.

The Sun enters ♋ and WINTER begins December 21st, at 4h. morning.

SIGNS OF THE ZODIAC.

These are twelve, and given for mean noon at Montreal, in "the Moon" column of each calendar page. They are as follows: ♈ Aries, the Ram; ♉ Taurus, the Bull; ♊ Gemini, the Twins; ♋ Cancer, the Crab; ♌ Leo, the Lion; ♍ Virgo, the Virgin; ♎ Libra, the Balance; ♏ Scorpio, the Scorpion; ♐ Sagittarius, the Archer; ♑ Capricornus, the Goat; ♒ Aquarius, the Water Bearer, and ♓ Pisces, the Fishes.

ECLIPSES.

In the year 1888 there will be five eclipses, three of the Sun and two of the Moon.

1.—A total eclipse of the Moon, January 28, generally visible throughout North and South America, Europe, Asia and Africa. Moon enters penumbra, Montreal mean time: 3h. 33m. aft.; enters shadow (beginning of eclipse) 4h. 36m.; total eclipse begins 5h. 36m.; middle of eclipse, 6h. 26m.; total eclipse ends, 7h. 15m.; Moon leaves shadow, (end of eclipse) 8h. 15m.; Moon leaves penumbra, 9h. 17m. Magnitude of the eclipse = 1.647 (Moon's diameter = 1). At Montreal the Moon rises eclipsed.

2.—A partial eclipse of the Sun, February 11, invisible at Montreal. This eclipse will be visible at the most southern portion of South America, New South Shetland and the Falkland Isles, the uninhabited regions around the South Pole, the southern parts of the South Pacific, South Atlantic and Indian Oceans. Greenwich mean time of the conjunction, 11h. 3m. 51s. eve. Magnitude of greatest eclipse = 0.502, (Sun's diameter = 1).

3.—A partial eclipse of the Sun, July 9, invisible at Montreal. This eclipse will be visible over the southern Indian Ocean, between Madagascar and Australia. Greenwich mean time of the conjunction, 6h. 35m. 30s. morn. Magnitude of greatest eclipse = 0.500, (Sun's diameter = 1).

4.—A total eclipse of the Moon, July 22-23, generally visible throughout North and South America, portions of Europe, Africa and the Pacific Ocean. Moon enters penumbra, Montreal mean time: 10h. 01m. eve.; enters shadow (beginning of eclipse), 11h. 0m.; total eclipse begins 11h. 59m.; middle of eclipse, 0h. 50m. morn.; total eclipse ends, 1h. 42m.; Moon leaves shadow (end of eclipse) 2h. 40m. Moon leaves penumbra, 3h. 39m. Magnitude of the eclipse = 1.825, (Moon's diameter = 1).

5.—A partial eclipse of the Sun, August 7, invisible at Montreal. This eclipse will be visible in the Arctic Ocean, Norway, Sweden, parts of Denmark and Greenland, the extreme northerly parts of North America and Asia. Greenwich mean time of the conjunction, 5h. 32m. 35s. aft. Magnitude of greatest eclipse = 0.198, (Sun's diameter = 1).

GENERAL FORECAST.



"GENERAL FORECAST, indeed?" I think I hear some sceptic say with a sneer, as he tosses the book on one side. But wait a moment, my friend. Take up the volume again, if you please. Very good; now listen for a few moments while I prove to you how it may be possible to forecast future weather almost to a nicety. Let me make my forecast for the year 1888, and all I ask of you is to keep track of the actual weather experienced. Provided that you only do what I ask impartially, setting aside all prejudice, I have no fear for the result, as the science of Astro-Meteorology, on which my forecasts are based, is a science giving no uncertain sound. As a proof, witness the success of those who rely upon it. There may, you know, be more things than even your philosophy dreams of.

But first of all I have to overcome your prejudice by proving to you that my work is scientific. It is not fair for you to believe those who are interested in ridiculing the work of Astro-Meteorologists without first ascertaining what good reason you, or any one else, has for thus ridiculing a

science that the noblest minds have been satisfied with. Do you mean to tell me that you, Mr. Sceptic, are cleverer than Kepler, or that your little numbskull has room for a larger brain and greater ideas than the "golden bowls" of Abraham, Job, Jacob, Joseph, Moses, Samuel, David, Solomon, Elijah, Daniel, Ezekiel, Ptolemy, Pythagoras, Anaxagoras, Anaximander, Democritus, Thales, Eudoxus, Hippocrates, Galen, Figulus, Cardan, Bacon, Melancthon, Dryden, Flammsteed and Goad : not to mention a hundred others ?

The Astro-Meteorologist's theory is, that the planets, including the earth, are magnets, attracting to them, or drawing out, the Sun's heat. In their eternal courses they continually come into conjunction, opposition, or other aspect with each other ; and the amount of magnetism is continually being altered. Hence come our weather changes. When most of the planets are with the earth, the temperature of a month or season is increased, as was the case in the Fall and Winter of 1882 ; when the planets are scattered, the temperature is equalized, as will be the case (generally) in 1888. Every position, moreover, has its particular influence, and as such is recorded. Familiar with what has taken place in the past under certain conditions, when such conditions again occur, is it unscientific to again expect them ? If seventeen cases of Mercury at perihelion have given thirteen great storms, is it utterly ridiculous to expect something similar at next perihelion ? If earthquakes are most frequent at intervals of twelve years, and Jupiter is at aphelion once in twelve years, am I to be anathematized as a weather crank unworthy of notice if I anticipate earthquakes at his next aphelion ? Ay, more, if an "epidemic" of disastrous fires, owing to the combined dryness and electrical condition of the summer atmosphere, occurs over a certain district when there is an accumulation of large planets in Leo, is it utterly ridiculous to connect one fact with the other ? If the heaviest rainfalls recorded take place at Saturnian conjunctions, is it owing to nothing but blind chance ? You may believe it to be if you like, but I am going to compute next year's weather from a knowledge of such facts.

Writing on September 7th, with the success of my "hot and dry" Summer forecast uppermost in my mind, I can

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also look back with complacency to the generally long, cold, and very snowy Winter of 1886-7, which I was also enabled to forecast "to a hair," and with some degree of confidence take a look off into the future. At my elbow are astronomical calculations for the whole of the year 1888, tabulated along with the resultant weather of past seasons at such aspects, positions and planetary constellations, augmented with the records of similar years' weather—or what I believe will prove similar years to that of 1888. For just as sure as the planetary constellations repeat themselves, so the weather repeats itself; the weather is not new, but as old as the climate; it is only man that is new at studying it. But man will get over this difficulty in time. Patient work and patient watching, careful studying and careful recording have already done, and will continue to do, wonders.

Everyone thinks he knows everything about the weather, except the man who really does know something, and almost everyone at present with sense enough to anticipate the future, is anticipating and dreading another terribly severe winter, a "couplet" to that of 1886-7. I wish to lift a weight from such peoples' minds. Because last Winter was very cold and snowy, and the Summer now ending very hot and dry (generally)—there were, I know, heavy streaks of rain in sections—is that a sufficient reason for anticipating another very cold Winter? If so, why? Even if only on the idea of a general law of compensation, has not the hot, dry Summer counterbalanced and generally made up for the cold, snowy Winter? Of course it has.

So far then, we are just "ending even." The weather ledger is balanced, and the books for the year closed. But can Nature throw off her Summer attire now, as easily as she did her Winter wraps last April? Is it probable that, as we then leapt out of the Winter into the Summer, that we shall now jump right out of Summer into Winter? Possible, but not probable, for Nature but seldom indulges in extremes. With this knowledge I was led to make the remarkable calculations for November and December 1887, in my last ALMANAC; with this knowledge, I now go several steps farther and open out what I consider to be the general probabilities for 1888.

First then, to those who want a year's forecast in a few words I would say : severe spells of cold at the setting in of Winter, probably quite early in the Fall ; very open periods with marked thaws, general rains and slush later on ; severe cold for the season when we generally expect the Winter to end ; a somewhat backward Spring—wet rather than dry this time—and a Summer “on the cool side”—notwithstanding some periods of remarkable heat—followed by a stormy Autumn.

Extended forecasts for each month follow, with yet more extended impressions of the probable changes during each week of the year (as usual) on the Calendar pages :—

JANUARY :—A month in which extreme cold and unseasonable mildness will alternate. Abrupt changes of temperature. Below zero one day and mild and rainy twenty-four hours later. The “January thaw” will likely be a marked feature, very different from 1887. Three or four cold “dips,” which although severe, will be of short duration. A January of alternate “dips” and “church steeples.”

FEBRUARY :—More abnormal weather this month. The peculiarities of January will likely be extended—especially during the first half—into February. Mild and open terms with some general thaws and rains, will be productive of floods, until the uninitiated anticipate an early opening of Spring. After this, look out for a return to Winter. A few pretty sharp terms during the month.

MARCH :—A month of low average temperature, wintry, stormy, and cold generally, Winter striving with Spring for the mastery and Winter usually getting the best of it. Heavy snows in Canada, the Northern, North-Western and Eastern States. A rough, cold March.

APRIL :—A generally backward month in most sections, with low temperatures, interspersed with one or two Spring, perhaps Summer-like periods. Heavy storms are probable at the beginning, and cold weather for the season at the close of the month. As the snow disappears Northward, farmers will likely find a good deal of their fall grain winter-killed, owing to Winter thaws and consequent exposure.

MAY :—May at its entry will make people talk of Winter again, owing to its general coolness. After a hot and

favorable period, when everything will likely make rapid growth, Winter be forgotten and Summer be thought to have arrived; I look for a cool reaction, with unsettled, stormy weather, the thermometer sinking from sultry Summer heat down to the frost line.

JUNE:—Will also have its periods of low temperature and backward weather, intermixed with sultry, hot terms, the latter of brief duration.

JULY:—A month of mean, rather than extreme temperatures. Some sultry terms, of course, with heavy thunder storms; altogether an average July, with a good deal of precipitation in northern sections. An entirely different month from the hot, dry July of 1887.

AUGUST:—Will probably distinguish itself by giving us "the" hot spell of the Summer of 1888. Temperatures during this heated term will doubtless run up as high as the highest reached in July 1887, when many places touched 100° in the shade and over. A fine, hot Summer-like month, a great contrast to much of the weather experienced during August, 1887. Even August, however, is likely to have one or two of the cool reactions, anticipated as proving a marked feature of the Spring and Summer of 1888.

SEPTEMBER:—A month with more than the usual number of storms, especially around the Equinox, when killing frosts are probable.

OCTOBER:—The first part mild and pleasant. A marked cool term towards the middle, lapsing into fine, warm, "Indian Summer" weather. Last part of the month cold and disagreeable; with frosts, sleet and snow flurries.

NOVEMBER:—Opening in all likelihood with a brief spell of marked "Indian Summer" weather, things will take a sudden change, and heavy rains, sleet and snow reduce the temperature rapidly. The rest of the month will be Winter-like, with a good deal of snow and some pretty low temperatures near the end.

DECEMBER:—Winter will now set in generally, and appear as if it had "come to stay," with severe cold and some heavy snow storms, somewhat similar to the December of 1886.

MONTREAL, *September 7, 1887.*

1st MONTH.

JANUARY.

31 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
☾ L. Q.	6	7.02 mo.	6.48 mo.	6.34 mo.	5.52 mo.	5.17 mo.
● N. M.	13	3.58 mo.	3.44 mo.	3.30 mo.	2.48 mo.	2.13 mo.
☽ F. Q.	20-21	0.09 mo.	11.55 ev.	11.41 ev.	10.59 ev.	10.24 ev.
☾ F. M.	28	6.38 ev.	6.24 ev.	6.10 ev.	5.28 ev.	4.53 ev.

DAYS.

WEATHER FORECAST.

MONTREAL.

M. W.

THE SUN — THE MOON
Slow Rises. Sets. Zod. Souths.

(1) Sunday after Christmas.

Uranus in Virgo.

		M.	H.	M.	H.	M.	H.	M.
1 Su.	NEW YEAR'S DAY. Enters	4	7	41	4	27	♅	Morn
2 Mo.	with but little snow E., followed by snow	4		41		28	♅	2 36
3 Tu.	falls and high winds and extreme cold in	5		41		29	♅	3 29
4 We.	N. W. and N.—Generally stormy every-	5		41		30	♅	4 20
5 Th.	where—Brilliant and cold—Snow, wind	6		41		31	♅	5 11
6 Fri.	and bluster at close	6		41		32	♅	6 01
7 Sat.	of week; generally	6		40		33	♅	6 53
	variable and squally.							

(2) 1st Sunday after Epiphany.

Neptune in Taurus.

8 Su.		7	7	40	4	34	♆	7 45
9 Mo.	Stormy; turning milder; heavy rains in	7		40		35	♆	8 40
10 Tu.	sections—cold again, with high winds and	8		40		36	♆	9 36
11 We.	snows—A cold term—Stormy, snowy and	8		40		37	♆	10 33
12 Th.	unsettled, with drifts, bluster and snow	8		39		38	♆	11 31
13 Fri.	blockades on 13th and 14th—Winter in	9		39		40	♆	Eve.
14 Sat.	earnest everywhere.	9		38		41	♆	1 21

(3) 2nd Sunday after Epiphany.

Mercury in Sagittarius.

15 Su.		10	7	37	4	42	♁	2 12
16 Mo.	Fine, brilliant winter weather, with	10		36		43	♁	2 59
17 Tu.	low temp. about 16th and 17th—Windy,	10		36		44	♁	3 44
18 We.	unsettled, with snows and drifts in W.,	11		35		46	♁	4 27
19 Th.	and rains in S.—A fine, cold term, inter-	11		35		48	♁	5 09
20 Fri.	mixed with snow storms—Extreme cold	11		34		49	♁	5 51
21 Sat.	weather, "a dip."	12		33		51	♁	6 34

(4) 3rd Sunday after Epiphany.

Venus in Ophiuchus.

22 Su.		12	7	32	4	52	♀	7 18
23 Mo.	Low ther. readings—Moderating to	12		32		54	♀	8 03
24 Tu.	mild, with snows, rains and fogs, accord-	12		31		55	♀	8 52
25 We.	ing to locality—Very heavy rains in many	12		30		56	♀	9 43
26 Th.	sections; mild and	13		29		57	♀	10 37
27 Fri.	slushy generally in E.—Another change	13		28		58	♀	11 31
28 Sat.	towards severe weather, with extreme	13		27		59	♀	Morn
	temp.—Snowy and very cold in N. W.							

(5) Septuagesima Sunday.

Mars in Virgo.

29 Su.		13	7	25	5	01	♂	0 26
30 Mo.	Snows, high winds and drifts—A milder	13		24		03	♂	1 21
31 Tu.	change, pleasant, and perhaps spring-like.	14		23		05	♂	2 15

PLANETS IN JANUARY, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 min.: for Iowa, Nebraska, and Kansas, 1 h. 35 m.; and the Pacific States, 3 h. 15m.)

The year opens with the fairest of planetary constellations, the golden-hued Jupiter passing the place of the radiant Venus on the 2nd at 11 a.m. when the planets are less than 2° apart. Roving Mercury reaches Aphelion, (farthest from the Sun) on the 3rd at 8 p.m., and Mars is 90° from the Sun, (first quadrature) at 7 a.m. on the 5th. He is then a "morning star." The waning Moon is North of Mars at 4 a.m. on the 6th, Luna taking up a similar position as regards Uranus 2½ hours later. Uranus, the "sea-green hued," is 90° from the Sun at 7 p.m. on the 7th. Luna passes Perigee (nearest the Earth) at 7.20 a.m. on the 8th, and overtakes the brilliant Jupiter at 6.24 a.m. on the 9th. Those who have had difficulty in locating Uranus, should easily find him 1° 40' S. of Mars on the 9th. The two are in conjunction at 2 p.m. The old Moon ere it reaches the Sun, passes Venus at 6.50 p.m. on the 9th, and Mercury at 10.50 p.m. on the 12th. Mercury is at Superior Conjunction (beyond the Sun) at 3 p.m. on the 18th, after which he commences to fill the role of an "evening star." The Moon is at Apogee (farthest from the Earth) on the 20th, at 7.22 p.m. Uranus is "stationary among the stars" at 3 p.m. on the 21st, and the Moon passes Neptune at 4 a.m. on the 23rd. Stolid Saturn is at his best on the night of the 22nd, being then 180° from the Sun (Opposition) and overhead at midnight. The Opposition is at 9 a.m. on the 23rd. Jupiter is now fairly entangled in the stars of the constellation *Scorpii*. He is but 8' S. of *Beta (Graffias)* at 6 p.m. on the 24th. The full Moon is near Saturn on the 28th at 8.34 a.m. and the Moon is eclipsed that evening.

A FEW COPIES LEFT.

VENNOR'S ALMANAC for 1884, for sale, price 50c.

VENNOR'S ALMANAC for 1885, (with portrait and life sketch), for sale, price 25c.

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SMITH'S PLANETARY ALMANAC for 1887, for sale, price 25c.

Address: WALTER H. SMITH, 31 Arcade Street, Montreal, Canada.

2nd MONTH.

FEBRUARY.

29 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
☾ L. Q.	4	2.45 ev.	2.31 ev.	2.17 ev.	1.35 ev.	1.00 ev.
● N. M.	11	7.12 ev.	6.58 ev.	6.44 ev.	6.02 ev.	5.27 ev.
☽ F. Q.	19	9.19 ev.	9.05 ev.	8.51 ev.	8.09 ev.	7.34 ev.
☾ F. M.	27	7.17 mo.	7.03 mo.	6.49 mo.	6.07 mo.	5.32 mo.

DAYS.	WEATHER FORECAST.	MONTREAL.					
		—THE SUN—			THE MOON		
M.	W.	Slow	Rises.	Sets.	Zod.	Souths.	
1 We.	Opens mild, variable and squally, with	14	7 22	5 06	♈	Morn	
2 Th.	CANDLEMAS. rains in the W.	14	20	08	♈	3 58	
3 Fri.	and S.—Sudden change to cold weather	14	19	09	♏	4 50	
4 Sat.	—A "dip."	14	18	11	♏	5 42	

(6) Sexagesima Sunday.

Jupiter in Scorpio.

5 Su.		14	7 17	5 12	♏	6 35	
6 Mo.	Enters cold, changing to milder again,	14	16	14	♏	7 30	
7 Tu.	with heavy rains W. and S. and snows in	14	14	15	♏	8 25	
8 We.	the E. and N. W. States and Canada—	14	13	17	♏	9 22	
9 Th.	High winds and drifts—Fine and cold—	14	12	18	♏	10 17	
10 Fri.	Stormy and unsettled at the close.	14	10	19	♏	11 11	
11 Sat.		14	09	21	♏	Eve.	

(7) Quinquagesima (Shrove) Sunday. Saturn in Cancer.

12 Su.	Snow storms N. W. and N., rains else-	14	7 07	5 22	♋	0 51	
13 Mo.	where, high winds and gales—Mild, thaws	14	06	24	♋	1 37	
14 Tu.	Shrove Tuesday. St. Valentine.	14	04	25	♋	2 21	
15 We.	ASH WEDNESDAY. and	14	02	27	♋	3 04	
16 Th.	floods, a general break-up threatened—	14	01	28	♋	3 46	
17 Fri.	Severe storms, cold, unsettled and snowy,	14	6 59	30	♋	4 28	
18 Sat.	drifts in N. W. and Mar. Prov.—A "dip."	14	58	31	♋	5 11	

(8) Quadragesima Sunday.

Uranus in Virgo.

19 Su.		14	6 56	5 33	♍	5 56	
20 Mo.	Opens with severe weather—Moderat-	14	54	34	♍	6 42	
21 Tu.	ing to mild, with alternate rain, sleet or	14	53	36	♍	7 31	
22 We.	snow, according to locality—(Heavy snows	13	51	37	♍	8 23	
23 Th.	N. and rains S. this week)—Stormy, with	13	50	39	♍	9 16	
24 Fri.	high winds, rains and snows—Milder at	13	48	40	♍	10 11	
25 Sat.	close.	13	47	41	♍	11 07	

(9) 2nd Sunday in Lent.

Mercury in Pisces.

26 Su.		13	6 45	5 43	♓	Morn	
27 Mo.	Rainy, sleety and squally generally—	13	44	45	♓	0 02	
28 Tu.	A thaw—Very mild for season.	13	43	46	♓	0 56	
29 We.		13	41	47	♓	1 49	

PLANETS IN FEBRUARY, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 min.; for Iowa, Nebraska, and Kansas, 1 h. 35 m.; and the Pacific States, 3 h. 15 m.)

The Leap Year month opens with Luna at Perigee at midnight on the 1-2. At noon on the 2nd she passes Uranus, is near Mars at 3 a.m. on the 3rd, and runs $4^{\circ} 2' N.$ of Jupiter on the 5th at 7.41 p.m. Neptune is "stationary" on the 6th at 2 p.m. and the old Moon passes on her way to the eclipse on the 11th, a little N. of Venus at 4 p.m. on the 8th. On the 13th at 4.25 a.m. the Moon is with Mercury; on the 16th at 7 a.m. Neptune is 90° from the Sun (overhead at 6 p.m.); at 7 p.m. the same evening Mercury is at Perihelion, he being at his greatest elongation East of the Sun, of $18^{\circ} 7'$ and well seen in the evening sky at 3 a.m. on the 17th. Luna is at Apogee at 4.16 p.m. the same afternoon. She is near Neptune at noon on the 19th. Mercury is "stationary" on the 23rd at 2 p.m., and the beautiful Jupiter is at Quadrature (overhead at 6 a.m.) at 5 a.m. on the 24th. Saturn and the Moon are together at 3.11 p.m. the same afternoon. The 29th has the Moon at Perigee at 11.17 a.m. She being near Uranus at 6.37 the same evening.

CORRECT WEATHER FORECASTS.

(To the Editor of the Montreal Witness.)

SIR,—As a member of the Astro-Meteorological Association, of which Mr. Walter H. Smith is President, I felt some interest in ascertaining the fact that in Western Ontario his forecasts for January in his *Planetary Almanac* were literally fulfilled, as the mercury ran very low and the aggregate frost was unusual. February has had short and sharp periods of cold, broken by rains and floods, as predicted, and ended cold.

As Mr. Smith and other members of the Association forecast the weather, not simply by local circumstances or comparisons of seasons, but by a scientific knowledge of the movements of the planets that are near to us and their influence in producing electric currents, they are on the right line and can calculate future storms within one or two days of their appearance.

W. HENDERSON,

Minister Methodist Church.

Glencoe, Ont., March 2nd, 1887.

3rd MONTH.

MARCH.

31 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
☾ L. Q.	4	10.45 ev.	10.31 ev.	10.17 ev.	9.35 ev.	9.00 ev.
● N. M.	12	11.41 mo.	11.27 mo.	11.13 mo.	10.31 mo.	9.56 mo.
☽ F. Q.	20	4.03 ev.	3.49 ev.	3.35 ev.	2.53 ev.	2.18 ev.
☉ F. M.	27	5.27 ev.	5.13 ev.	4.59 ev.	4.17 ev.	3.42 ev.

DAYS.	WEATHER FORECAST.	MONTREAL.					
		THE SUN—			THE MOON		
M. W.		Slow.	Rises.	Sets.	Zod.	Souths.	
1 Th.	ST. DAVID. March opens mild,	12	6 40	5 48	♌	♌	Morn
2 Fri.	variable, rainy and windy—Colder, gales	12	38	49	♍	♍	3 36
3 Sat.	and bluster.	12	36	50	♎	♎	4 30

(10) 3rd Sunday in Lent.

Venus in Capricornus.

4 Su.		12	6 34	5 51	♋	♋	5 26
5 Mo.	Stormy, unsettled, snows and drifts,	11	32	53	♋	♋	6 21
6 Tu.	especially in N. and N.W.—A "dip" about	11	30	54	♌	♌	7 17
7 We.	7th and 8th—Moderating, with wind and	11	28	55	♌	♌	8 12
8 Th.	snow at close of week.	11	26	57	♍	♍	9 06
9 Fri.		11	25	58	♍	♍	9 57
10 Sat.		10	23	6 00	♎	♎	10 46

(11) 4th Sunday in Lent.

Mars in Virgo.

11 Su.		10	6 21	6 01	♍	♍	11 32
12 Mo.	Gales prevalent, stormy and unsettled	10	19	02	♍	♍	Eve.
13 Tu.	generally—Cold and wintry E. W. and S.,	9	17	03	♎	♎	1 00
14 We.	very cold in N. W.; cold "dips" in Mar.	9	15	05	♎	♎	1 42
15 Th.	Prov., and cold weather far to the S.—	9	13	06	♎	♎	2 24
16 Fri.	Stormy.	9	11	07	♏	♏	3 07
17 Sat.	ST. PATRICK.	8	09	08	♏	♏	3 50

(12) 5th Sunday in Lent.

Jupiter in Scorpio.

18 Su.		8	6 07	6 10	♏	♏	4 36
19 Mo.	Snows N., rains S., high winds gener-	8	06	11	♏	♏	5 23
20 Tu.	al—Bluster and storms continue, with	7	04	13	♏	♏	6 13
21 We.	Equinoctial gales—Heavy snows around	7	02	14	♏	♏	7 04
22 Th.	Chicago and Westward—Milder, with wet	7	00	15	♏	♏	7 57
23 Fri.	weather in the S. and E.	6	5 58	16	♏	♏	8 51
24 Sat.		6	56	18	♏	♏	9 45

(13) Palm Sunday.

Saturn in Cancer.

25 Su.	ANNUNCIATION. Fine and	6	5 54	6 19	♏	♏	10 39
26 Mo.	cold, with strong winds—Milder, with	5	52	20	♏	♏	11 34
27 Tu.	heavy rains—Variable, mild weather for	5	50	21	♏	♏	Morn
28 We.	the season—Month closes stormy, un-	5	48	23	♏	♏	0 28
29 Th.	settled and	4	47	24	♏	♏	1 23
30 Fri.	GOOD FRIDAY. cold. (Dan-	4	45	26	♏	♏	2 19
31 Sat.	gerous wind storms probable.)	4	43	27	♏	♏	3 16

PLANETS IN MARCH, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 m.; for Iowa, Nebraska, and Kansas, 1 h. 35 m.; and the Pacific States, 3 h. 15 m.)

The Moon is near Mars on the 1st at 6 p.m. Mercury is in line with the Earth and Sun (Inferior Conjunction) at 2 p.m. on the 3rd. Luna is $3^{\circ} 47'$ N. of Jupiter at 5.42 a.m. on the 4th, and Mars is "stationary" 18 minutes later. The waning Moon approaches very close to Venus ($18'$) at 4.42 p.m. on the 9th, and runs $5^{\circ} 8'$ S. of Mercury at 1.22 a.m. on the 11th. On the 16th at 9 a.m. Luna is at Apogee, and the next morning at 1, Mercury is "stationary." Neptune and the Moon are in Conjunction on the 17th at 8.42 p.m. The Sun touches the first point of *Aries* at 11 p.m. on the 19th, when Astronomical Spring commences. The ponderous Jupiter halts on his course on the 22nd at 2 a.m., when he is for a short time "stationary among the stars." Saturn is near the Moon at 11 p.m. the same day. A very close Conjunction is that of Venus and Mercury, at 8 p.m. on the 27th, when Mercury is but $2'$ N. of the place of his beautiful sister. These planets being "morning stars" should be noticed on the mornings of the 27-28th. On the latter date Uranus is S. of the Moon at 3.04 a.m., the Moon being at Perigee at 5.18 p.m., and in Conjunction with Mars at 9.21 the same evening. Mercury is well placed as a "morning star" on the 30th, being at greatest elongation W. of the Sun ($27^{\circ} 49'$) at 9 p.m. Slow moving Saturn stops on his course the same night at 10 o'clock, when he is "stationary." Jupiter is $3^{\circ} 32'$ S. of Luna at 1.28 p.m. on the 31st, and Mercury in Aphelion the same evening at 7.

"ASTRONOMY AND METEOROLOGY"

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4th MONTH.

APRIL.

30 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
☾ L. Q.	3	8.01 mo.	7.47 mo.	7.33 mo.	6.51 mo.	6.16 mo.
● N. M.	11	4.28 mo.	4.14 mo.	4.00 mo.	3.18 mo.	2.43 mo.
☽ F. Q.	19	7.12 mo.	6.58 mo.	6.44 mo.	6.02 mo.	5.27 mo.
☼ F. M.	25-26	1.42 mo.	1.28 mo.	1.14 mo.	0.32 mo.	11.57 ev.

DAYS.

WEATHER FORECAST.

MONTREAL.

M. W.

THE SUN		THE MOON
Slow Rises.	Sets.	Zod. Souths.

(14) Easter Sunday.

Uranus in Virgo.

		M.	H.	M.	H.	M.	H.	M.
1 Su.		4	5	41	6	28	♄	Morn
2 Mo.	Storms continue (tornadoes probable in	4		40	29	♄	♄	5 11
3 Tu.	April tornado sections, also thunder	3		38	31	♄	♄	6 08
4 We.	storms), rains, snows, high winds and	3		36	32	♄	♄	7 03
5 Th.	cold weather—Milder, showery and	3		34	33	♄	♄	7 55
6 Fri.	windy, ordinary April weather.	2		32	34	♄	♄	8 44
7 Sat.		2		30	35	♄	♄	9 31

(15) Low Sunday.

Neptune in Taurus.

8 Su.		2	5	28	6	37	♄	10 15
9 Mo.	Cool, with frequent showers—Fine—	2		26	38	♄	♄	10 58
10 Tu.	Stormy and unsettled, cold and wintry	1		24	39	♄	♄	11 40
11 We.	again—Showery, mild and spring-like at	1		22	40	♄	♄	Eve.
12 Th.	close of week.	1		20	42	♄	♄	1 04
13 Fri.		0		19	43	♄	♄	1 48
14 Sat.		0		17	45	♄	♄	2 32

(16) 2nd Sunday after Easter.

Mercury in Pisces.

15 Su.		fast	5	15	6	46	♄	3 19
16 Mo.	Fine April weather; mild, with occa-	0		13	47	♄	♄	4 07
17 Tu.	sional showers and wind storms—Colder,	0		11	48	♄	♄	4 57
18 We.	heavy rain, sleet or snow, according to	1		10	50	♄	♄	5 48
19 Th.	locality; strong winds.	1		08	51	♄	♄	6 40
20 Fri.		1		07	52	♄	♄	7 32
21 Sat.		1		05	53	♄	♄	8 25

(17) 3rd Sunday after Easter.

Venus in Pisces.

22 Su.	A mild, spring-like term—Windy, with	2	5	03	6	54	♄	9 18
23 Mo.	rain and hail	2		02	56	♄	♄	10 11
24 Tu.	ST. GEORGE. showers—Fine	2		00	57	♄	♄	11 05
25 We.	ST. MARK. advanced spring-	2	4	59	58	♄	♄	Morn
26 Th.	(perhaps summer) like weather. (Quite a	2		57	59	♄	♄	0 01
27 Fri.	warm spell this week.)	2		56	7 01	♄	♄	0 59
28 Sat.		3		54	02	♄	♄	1 58

(18) 4th Sunday after Easter.

Mars in Virgo.

29 Su.	Cool again, rainy and windy generally.	3	4	52	7	04	♄	2 58
30 Mo.		3		50	05	♄	♄	3 58

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PLANETS IN APRIL, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 m.; for Iowa, Nebraska, and Kansas, 1 h. 35 m.; and the Pacific States, 3 h. 15 m.)

Venus is in Aphelion on the 2nd at 4 p.m. Uranus reaches Opposition and becomes an "evening star" on the 4th at 8 a.m., when he is directly overhead at midnight. On the 8th Mercury and the Moon are in Conjunction at 6.12 p.m., and Venus is overtaken by the Moon at 8.22 the same evening. The two planets are "morning stars." Mars reaches one of his most unfavorable Oppositions for astronomical discoveries (he being very far away from the Earth at the time) on the 11th, at 1 a.m., when he is overhead at midnight and becomes an "evening star" for the rest of the year. The Moon is at Apogee at 5.07 p.m. on the 12th; Venus and Mercury are in Conjunction on the 13-14th at midnight, and Neptune is near the Moon on the 14th at 4.45 a.m. On the 19th at 4 a.m., Saturn reaches Quadrature (90° from the Sun) when he is overhead at sunset. The Moon is alongside Saturn at 7.35 the same morning. On the 24th, at noon, Uranus is near the Moon; less than five hours later Mars is in a similar position. The 26th, at 3.07 morn., sees the Moon in Perigee. The 27th, at 8.22 p.m., Luna is 3° 26' N. of Jupiter.

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5th MONTH.

MAY.

31 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
☾ L.Q.	2	7.07 ev.	6.53 ev.	6.39 ev.	5.57 ev.	5.22 ev.
● N.M.	10	8.43 ev.	8.29 ev.	8.15 ev.	7.33 ev.	6.58 ev.
☽ F.Q.	18	6.25 ev.	6.11 ev.	5.57 ev.	5.15 ev.	4.40 ev.
☾ F.M.	25	8.59 mo.	8.45 mo.	8.31 mo.	7.49 mo.	7.14 mo.

DAYS.	WEATHER FORECAST.	MONTREAL.					
		THE SUN—			THE MOON		
M. W.		Fast	Rises.	Sets.	Zod.	Souths.	
1 Tu.	MAY DAY. Opens cool, windy	3	4 49	7 06	♊	♋	5 50
2 We.	and unsettled, with cold rains, sleet and	3	47	07	♊	♋	6 41
3 Th.	snow flurries in Canada, N. Y., W. and	3	46	09	♊	♋	7 29
4 Fri.	N. W.—Warmer, some dashing showers.	3	44	10	♊	♋	8 14
5 Sat.		3	43	11	♊	♋	8 14

(19) Rogation Sunday.

Jupiter in Scorpio.

6 Su.	Fine, warm, spring-like weather—Warm	4	4 42	7 12	♏	♏	8 58
7 Mo.	and windy—A cool change—Showery,	4	40	13	♏	♏	9 40
8 Tu.	windy and unsettled—Warm, to hot	4	39	14	♏	♏	10 21
9 We.		4	37	16	♏	♏	11 03
10 Th.	ASCENSION DAY. again,	4	36	17	♏	♏	11 46
11 Fri.	with bush fires.	4	35	18	♏	♏	Eve.
12 Sat.		4	34	19	♏	♏	1 16

(20) Sunday after Ascension.

Saturn in Cancer.

13 Su.	Warm and windy—Stormy and unset-	4	4 33	7 21	♋	♋	2 04
14 Mo.	tled, (tornadoes probable in tornado sec-	4	31	22	♋	♋	2 54
15 Tu.	tions)—followed by cool rains, perhaps	4	30	23	♋	♋	3 44
16 We.	sleet flurries—A clearing, cool period—	4	29	24	♋	♋	4 35
17 Th.	Fine, with local frosts, changing to	4	28	25	♋	♋	5 26
18 Fri.	warmer at the close.	4	27	26	♋	♋	6 17
19 Sat.		4	26	27	♋	♋	7 08

(21) Whit Sunday (Pentecost).

Uranus in Virgo.

20 Su.	Opens warm—Cooler, unsettled, rain	4	4 25	7 28	♍	♍	7 59
21 Mo.	and hail storms, and high winds generally	4	24	29	♍	♍	8 51
22 Tu.	—Storms West—Fine—Quite a sultry	4	23	30	♍	♍	9 44
23 We.		3	22	31	♍	♍	10 40
24 Th.	Queen Victoria born 1819.	3	21	32	♍	♍	11 38
25 Fri.	spell; smoky, hot weather.	3	20	33	♍	♍	Morn
26 Sat.		3	19	34	♍	♍	0 39

(22) Trinity Sunday.

Mercury in Taurus.

27 Su.	Heat continues, bush fires prevalent—	3	4 19	7 35	♉	♉	1 40
28 Mo.	Unsettled, overcast and rainy, with strong	3	18	36	♉	♉	2 41
29 Tu.	winds at	3	18	37	♉	♉	3 39
30 We.	Decoration Day.	3	17	38	♉	♉	4 33
31 Th.	Corpus Christi. the close.	3	16	39	♉	♉	5 24

PLANETS IN MAY, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 m.; for Iowa, Nebraska, and Kansas 1 h. 35 m., and the Pacific States 3 h. 15 m.)

There are some notable planetary constellations this month. The first of consequence is on the 5th, at 1 p.m., when amateurs with small telescopes will have another good opportunity of seeing Uranus, who is then but 34' S. of Mars. The planets are "evening stars." The waning Moon passes Venus at 4 a.m. on the 9th, Luna reaching Apogee at 8 the same evening. She is near Mercury at 5.17 p.m. on the 10th, Mercury reaching Superior Conjunction, and passing behind the Sun two hours later. The first Conjunction of the new Moon is with Neptune at noon of the 11th. Mercury is in Perihelion on the 14th at 6 p.m., and in Conjunction with Neptune at 3 a.m. on the 15th, when the nearest and farthest members of the Sun's family are $2^{\circ} 32'$ apart. The Conjunction is too near the Sun for visibility. Luna is but 43' S. of Saturn at 2.42 p.m. on the 16th. Neptune passes Conjunction and becomes a "morning star" on the 20th at 5 a.m. Once again the full orb of Jupiter is in close Conjunction (almost occultation this time) with *Beta Scorpii* (*Graffias*.) The planet's nearest approach to the star is at 10 p.m. on the 20th, when both are well placed for seeing. Mars is near the Moon at 5.56 p.m. on the 21st, and Uranus near her at 8.32 p.m. At midnight of the 22-23rd Jupiter reaches Opposition, when he is brightest, as well as overhead at midnight. Mars is "stationary" one hour later. On the 24th the Moon is at Perigee at 1.20 p.m., Luna being N. of Jupiter at 2 o'clock next morning.

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6th MONTH.

JUNE.

30 DAYS.

Moon's Phase	Day.	BOSTON.	MONTEAL.	WASHINGTON	CHICAGO.	OMAHA.
☾ L.Q.	1	8.13 mo.	7.59 mo.	7.45 mo.	7.03 mo.	6.28 mo.
● N.M.	9	11.54 mo.	11.40 mo.	11.26 mo.	10.44 mo.	10.09 mo.
☽ F.Q.	17	2.09 mo.	1.55 mo.	1.41 mo.	0.59 mo.	0.24 mo.
☼ F.M.	23	4.27 ev.	4.13 ev.	3.59 ev.	3.17 ev.	2.42 ev.
☾ L.Q.	30	11.12 ev.	10.58 ev.	10.44 ev.	10.02 ev.	9.27 ev.

DAYS.	WEATHER FORECAST.		MONTEAL.					
			THE SUN			THE MOON		
M.	W.		Fast	Rises.	Sets.	Zod.	Souths.	
1 Fri.		Windy and showery—Warmer.	2	4 16	7 40	☾	Morn	
2 Sat.			2	15	41	☾	6 56	
(23) 1st Sunday after Trinity.			Venus in Taurus.					
3 Su.		Generally warm to sultry, windy and	2	4 14	7 42	☿	7 38	
4 Mo.		showery—Hot in the West and South—	2	14	43	☿	8 20	
5 Tu.		Heavier rainfalls, with thunder storms—	2	13	44	☿	9 02	
6 We.		Stormy in Lake region, rainy in Western	2	12	45	☿	9 44	
7 Th.		sections—Last part of week cooler wea-	1	12	45	☿	10 28	
8 Fri.		Henry G. Vennor died 1884. ther	1	12	46	☿	11 13	
9 Sat.		(frosts possible)—Fine.	1	12	46	☿	Eve.	
(24) 2nd Sunday after Trinity.			Mars in Virgo.					
10 Su.		Continues fine and cool for season—	1	4 11	7 47	♄	0 50	
11 Mo.		ST. BARNABAS. Storms of	1	11	47	♄	1 41	
12 Tu.		wind, thunder, hail and rain in Canada,	1	11	48	♄	2 32	
13 We.		Western and Northern U. S.—Some heavy,	0	11	48	♄	3 24	
14 Th.		cool rains in sections. (Frosts will likely	0	11	49	♄	4 14	
15 Fri.		be reported again this week.) Hot at the	st'w	11	49	♄	5 04	
16 Sat.		close.	0	11	50	♄	5 54	
(25) 3rd Sunday after Trinity.			Jupiter in Libra.					
17 Su.		Fine, hot weather—Unsettled and	1	4 11	7 50	♃	6 44	
18 Mo.		squally, high winds, hail and thunder	1	11	51	♃	7 34	
19 Tu.			1	11	51	♃	8 27	
20 We.		Accession of Queen Victoria.	1	11	51	♃	9 22	
21 Th.		storms—A favorable change generally—	1	11	51	♃	10 20	
22 Fri.		Fine, hot weather.	2	12	52	♃	11 21	
23 Sat.			2	12	52	♃	Morn	
(26) 4th Sunday after Trinity.			Saturn in Cancer.					
24 Su.		ST. JOHN BAPTIST.—MID-	2	4 12	7 52	♄	0 22	
25 Mo.		SUMMER DAY.	2	13	52	♄	1 22	
26 Tu.		Warm, with wind and rain storms—Hot	3	13	52	♄	2 20	
27 We.		and sultry, especially in W. and S.—Stormy	3	14	52	♄	3 14	
28 Th.		and unsettled; wind and hail storms W.	3	14	52	♄	4 03	
29 Fri.		(Tornadoes probable in June tornado sec-	3	15	52	♄	4 50	
30 Sat.		ST. PETER and ST. PAUL.	3	15	51	♄	5 35	

PLANETS IN JUNE, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 min.; for Iowa, Nebraska and Kansas, 1 h. 35 min., and the Pacific States, 3 h. 15 m.)

Midsummer month opens this year with a close Conjunction of Neptune and Venus, on the 1st at 8 a.m., when the trident bearer is but 54' S. of the "lovely lady of the dove-drawn car." On the 6th the Moon is at Apogee at 4.16 a.m., and a second close conjunction of Mars and Uranus is in order, Mars passing 47' N. of Uranus at midnight of the 6-7. The Moon is near Neptune at 9 p.m. on the 7th, leaves Venus behind at 3 p.m. on the 8th, and pays her court to Mercury at 4.09 p.m. on the 11th. The latter is well out from the Sun at the time, reaching his greatest elongation East of 24° 24' during the afternoon of the 12th. The next morning at 2.54 Saturn is but 20' N. of the Moon; who runs past Uranus and Mars on the morning of the 18th. At 2 a.m. on the 19th, Uranus is "stationary." The Sun enters Cancer and Summer commences at 7 p.m. on the 20th. The 21st at 6.41 a.m., Jupiter is near the Moon, the latter making her Perigee point at 7.15 that evening. Mercury is "stationary" on the 25th at 6 p.m., and in Aphelion on the 27th at the same hour.

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What a question! If you were not fond of reading you would not have been a purchaser of this Book in order to read its interesting contents. Of course you are fond of reading, and if you are a Montrealer, you have doubtless many times purchased volumes at DRYSDALE'S, on St. James Street. If you are not a resident of Montreal, you would do well to send for quotations of any books you are in need of. Such quotations are willingly supplied at all times. W. DRYSDALE & Co. have many thousands of beautiful Volumes, on every subject, always keeping in Stock all the Books of the best American, English and other authors.

Most of the readers of this Annual know that Lew Wallace, the Author of "Ben Hur," "The Fair God," etc., is a relative of Gen. Test, of Omaha, who has contributed several beautiful essays to SMITH'S ALMANAC. The works of Wallace, in various bindings, are always to be had from MESSRS. W. DRYSDALE & Co., 232 St. James Street, Montreal.

7th MONTH.

JULY.

31 DAYS.

Moon's Phase	Day	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
● N.M.	8-9	1.36 mo.	1.22 mo.	1.08 mo.	0.26 mo.	11.51 ev.
☾ F.Q.	16	7.32 mo.	7.18 mo.	7.04 mo.	6.22 mo.	5.47 mo.
☽ F.M.	22-23	1.04 mo.	0.50 mo.	0.36 mo.	11.54 ev.	11.19 ev.
☾ L.Q.	30	3.49 ev.	3.35 ev.	3.21 ev.	2.39 ev.	2.04 ev.

DAYS.	WEATHER FORECAST.	MONTREAL.	
		THE SUN— Slow. Rises. Sets.	THE MOON Zod. Souths.
M. W.			

(27) 5th Sunday after Trinity.

Uranus in Virgo.

		M.	H.	M.	H.	M.	H.	M.
1 Su.	DOMINION DAY. A generally	4	4	16	7	51	Υ	Morn
2 Mo.	rainy period; heavy rains in S.—Fine,	4		16		51	Υ	6 59
3 Tu.		4		17		51	♄	7 41
4 We.	INDEPENDENCE DAY.	4		17		50	♄	8 24
5 Th.	cool for the season—A sudden change to	4		18		50	♄	9 09
6 Fri.	hot and sultry, with scattered storms	4		19		49	♄	9 56
7 Sat.	of wind, hail, rain and thunder.	5		20		49	♄	10 45

(28) 6th Sunday after Trinity.

Neptune in Taurus.

8 Su.		5	4	21	7	48	♆	11 36
9 Mo.	Hot and stormy—High winds and	5		22		48	♆	Eve.
10 Tu.	thunder showers (damaging storms prob-	5		23		48	♄	1 20
11 We.	able)—Unsettled; rainy and cool—Fine	5		23		47	♄	2 11
12 Th.	and cool, possibly local frosts—Generally	5		24		46	♄	3 02
13 Fri.	fine warm weather at close of week.	5		24		45	♄	3 52
14 Sat.		6		25		44	♄	4 41

(29) 7th Sunday after Trinity.

Mercury in Gemini.

15 Su.	ST. SWITHIN. Hot, summer	6	4	26	7	44	♁	5 31
16 Mo.		6		27		43	♁	6 21
17 Tu.	weather, with local thunder storms—	6		28		42	♁	7 14
18 We.	Rather dry in sections of Canada and	6		29		41	♁	8 09
19 Th.	Western States—A week of high temper-	6		30		40	♁	9 07
20 Fri.	ature generally.	6		31		39	♁	10 06
21 Sat.		6		32		38	♁	11 06

(30) 8th Sunday after Trinity.

Venus in Cancer.

22 Su.	Sultry weather continues, with heavy	6	4	33	7	37	♁	Morn
23 Mo.	thunder, wind and hail storms (tornadoes	6		34		36	♁	0 05
24 Tu.	Canada visited by Cartier 1534.	6		35		35	♁	1 00
25 We.	ST. JAMES.	6		36		34	♁	1 53
26 Th.	probable in July tornado sections)—Great	6		37		33	♁	2 42
27 Fri.	heat, with some sudden rain storms.	6		38		32	Υ	3 28
28 Sat.	(Another hot week.)	6		39		31	Υ	4 12

(31) 9th Sunday after Trinity.

Mars in Virgo.

29 Su.	Hot, with strong winds and showers,	6	4	40	7	30	Υ	4 54
30 Mo.	unsettled—Cooler towards the close of	6		41		29	♄	5 37
31 Tu.	month.	6		42		29	♄	6 19

PLANETS IN JULY, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 min.; for Iowa, Nebraska, and Kansas, 1 h. 35 m., and the Pacific States, 3 h. 15 m.)

The greater and lesser lights—Sun and Moon—are both at Apogee (farthest from the earth) on the 3rd, the former at 2 p.m. and the latter at 5.18 p.m. Uranus is 90° from the Sun (Quadrature) at 4 p.m. on the 4th. The Moon, prior to her Conjunction, passes Neptune at 5.48 a.m. on the 5th, Luna reaching the Sun's place at 1 a.m. on the 9th. At midnight on the 8-9th Mercury is at Inferior Conjunction as well as in Conjunction with Venus. The Moon being in Conjunction with Mercury at 0.23 a.m. and with Venus at 0.28 a.m.; an unusual occurrence. On the 10th the almost new Moon is in remarkably close Conjunction with Saturn, passing $1'$ S. of him at 2.50 p.m. Twenty-four hours later Venus reaches Superior Conjunction and becomes an "evening star" for the rest of the year. Uranus and the Moon are near each other on the 15th at 9.32 a.m., the Moon passing Mars the next day at 8 a.m. Jupiter is $4^\circ 5' S.$ of the Moon at 11.44 a.m. on the 18th, the Moon being at Perigee at noon of the 19th. Mercury is "stationary" three hours later. On the 22nd Mars is 90° from the Sun at 2 p.m., and the Moon is eclipsed the same evening. Jupiter is "stationary" on the 23rd at 10 a.m., and Venus in Perihelion at 11 p.m. A very close approach of Venus and Saturn occurs on the 27th, but the planets will be too near the Sun to see. Saturn, at 8 a.m. is then but $35'$ S. of Venus. Mercury is at greatest elongation W. of $19^\circ 31'$ at 2 a.m. on the 29th, when he is favorably placed for seeing prior to sunrise. The Moon is at Apogee on the 31st at noon.

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8th MONTH.

AUGUST.

31 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
● N.M.	7	1.40 ev.	1.26 ev.	1.12 ev.	0.30 ev.	11.55 mo.
☽ F.Q.	14	0.03 ev.	11.49 mo.	11.35 mo.	10.53 mo.	10.18 mo.
☼ F.M.	21	11.40 mo.	11.26 mo.	11.12 mo.	10.30 mo.	9.55 mo.
☾ L.Q.	29	9.38 mo.	9.24 mo.	9.10 mo.	8.28 mo.	7.53 mo.

DAYS.	WEATHER FORECAST.	MONTREAL.					
		THE SUN			THE MOON		
M.	W.	Slow	Rises.	Sets.	Zod.	Souths.	
1 We.	LAMMAS DAY. Hot and	6	4 43	7 28	♄	♁	Morn
2 Th.	sultry again; very fine, hot weather, with	6	45	26	♁	♁	7 49
3 Fri.	local thunder storms, (storms in the	6	46	25	♁	♁	8 37
4 Sat.	West.)	6	47	24	♁	♁	9 27

(32) 10th Sunday after Trinity.

Jupiter in Libra.

5 Su.	Stormy and hot, very hot everywhere	6	4 48	7 23	♁	♁	10 19
6 Mo.	5th and 6th—Heavy rains about 7th and	6	50	21	♁	♁	11 12
7 Tu.	8th, with high winds—Storms in New	5	51	19	♁	♁	Eve.
8 We.	England, destructive wind storms (torna-	5	52	18	♁	♁	0 56
9 Th.	does probable in August tornado sections)	5	53	16	♁	♁	1 48
10 Fri.	ST. LAWRENCE. —Cooler,	5	54	14	♁	♁	2 38
11 Sat.	frosts probable in N. W.	5	56	13	♁	♁	3 28

(33) 11th Sunday after Trinity.

Saturn in Cancer.

12 Su.	Cooler weather continues—Warm, fine	5	4 57	7 11	♁	♁	4 19
13 Mo.	and pleasant—Much warmer in W.—Heat	5	58	09	♁	♁	5 10
14 Tu.	moving	4	59	08	♁	♁	6 04
15 We.	ASSUMPTION, B.V.M. Eastward,	4	5 00	07	♁	♁	7 00
16 Th.	followed	4	02	06	♁	♁	7 57
17 Fri.	with thunder and wind storms—Cooler	4	03	04	♁	♁	8 55
18 Sat.	and fine at end of week.	4	04	02	♁	♁	9 53

(34) 12th Sunday after Trinity.

Uranus in Virgo.

19 Su.	Favorable, but nights chilly—Generally	4	5 05	7 00	♁	♁	10 49
20 Mo.	hot summer weather, with thunder storms	3	06	6 58	♁	♁	11 42
21 Tu.	—Occasional showers and high winds;	3	08	56	♁	♁	Morn
22 We.	gales along the Atlantic Coast; fine and	3	09	54	♁	♁	0 32
23 Th.		2	10	52	♁	♁	1 20
24 Fri.	St. Bartholomew. hot Westward.	2	11	51	♁	♁	2 05
25 Sat.		2	12	49	♁	♁	2 48

(35) 13th Sunday after Trinity.

Mercury in Leo.

26 Su.	Fine and warm generally—Wet weather	2	5 14	6 48	♁	♁	3 31
27 Mo.	in Southern sections, heavy rains in most	1	15	46	♁	♁	4 14
28 Tu.	places, rainy and cool—Fine, cool to	1	16	44	♁	♁	4 57
29 We.	cold, perhaps local frosts.	1	17	42	♁	♁	5 42
30 Th.		0	18	41	♁	♁	6 29
31 Fri.		0	20	40	♁	♁	7 18

PLANETS IN AUGUST, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 min.; for Iowa, Nebraska, and Kansas, 1 h. 35 m., and the Pacific States, 3h. 15 m.)

The Moon is near Neptune on the 1st at 2.54 p.m. Five hours later the slow moving Saturn passes behind the Sun, and becomes a "morning star" for the rest of the year. Mercury is but 18' N. of the Moon at 4 a.m. on the 6th. On the 7th the Sun is eclipsed, the Moon, prior to her occultation of the Sun, passing 16' N. of Saturn at 4.34 a.m. After her conjunction with the Sun the Moon passes Venus at 3.45 a.m. on the 8th. At 6 p.m. on the 10th, Mercury is in Perihelion, and on the following afternoon at 4.36 Uranus is in Conjunction with the Moon. Two days later, at 3.46, the same can be said of Mars. The 13th has also another Conjunction, viz.: that of Saturn and Mercury, the latter passing 39' N. of Saturn at 11 p.m. The Moon reaches Perigee on the 14th at 6.23 a.m., and passes Jupiter at 6.41 the same evening. Jupiter is 90° from the Sun at 3 a.m. on the 20th, when he is overhead at 6 p.m. Mercury makes his passage behind the Sun (Superior Conjunction) at 8 p.m. on the 23rd, and Neptune is 90° from that luminary at 10 p.m. on the 24th. The Moon is at Apogee on the 28th at 7.06 a.m., and in Conjunction with Neptune at 11.37 the same evening.

LAST SUMMER'S ACCURATE FORECAST.

Mr. Walter H. Smith seems to have made an accurate forecast of the weather during the present season. In the May number of *Astronomy and Meteorology* in answer to the question "What are the probabilities?" for the then coming Summer, he wrote: "In two words, heat and drought." The weather for July was successfully anticipated. "July will come in," said the prophet, with "some persistent dry weather which under burning skies and with parching 'chinooks' will wither the tender crops, burn the grass, bake the soil and dry up the perennial springs. Days in July and August in the West and South promise temperatures over 100 in the shade." The telegraph wires, to say nothing of our own experience, go to prove the correctness of this forecast.—*Daily Star, Montreal.*

9th MONTH.

SEPTEMBER.

30 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
● N.M.	5-6	0.16 mo.	0.02 mo.	11.48 ev.	11.06 ev.	10.31 ev.
☽ F.Q.	12	5.20 ev.	5.06 ev.	4.52 ev.	4.10 ev.	3.35 ev.
☾ F.M.	19-20	0.44 mo.	0.30 mo.	0.16 mo.	11.34 ev.	10.59 ev.
☾ L.Q.	28	3.50 mo.	3.36 mo.	3.22 mo.	2.40 mo.	2.05 mo.

DAYS.	WEATHER FORECAST.	MONTREAL.	
		THE SUN	THE MOON
M. W.		Fast Rises.	Sets. Zod. Souths.

1	Sat. ST. GILES.	Enters fine and cool.	M. 5 21	H. M. 6 39	☽ Morn
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(36) 14th Sunday after Trinity. Venus in Virgo.

2	Su.		0	5 22	6 37	☽ 9 00
3	Mo.	Warm, to hot and stormy—Cool rains,	1	23	35	☾ 9 53
4	Tu.	fine and cool again, nights quite cold—	1	24	33	☾ 10 46
5	We.	Windy, cloudy and squally—Warmer at	1	26	31	☾ 11 38
6	Th.	close.	2	27	29	☾ Eve.
7	Fri.		2	28	27	☾ 1 21
8	Sat.		2	29	25	☾ 2 13

(37) 15th Sunday after Trinity. Mars in Scorpio.

9	Su.	Hot, sultry weather for September—	3	5 30	6 23	♂ 3 06
10	Mo.	Thunder and rain storms general, great	3	32	22	♂ 4 00
11	Tu.	damage by storms, with heavy rains and	4	33	20	♂ 4 55
12	We.	floods, especially along Atlantic Coast,	4	34	18	♂ 5 52
13	Th.	about 11th and 12th—Fine and generally	4	35	16	♂ 6 50
14	Fri.	HOLY CROSS. cooler weather	5	36	14	♂ 7 47
15	Sat.	close of week.	5	38	12	♂ 8 43

(38) 16th Sunday after Trinity. Jupiter in Scorpio.

16	Su.	Fine, pleasant and seasonable—Un-	5	5 39	6 10	♃ 9 36
17	Mo.	settled, heavy rains and thunder storms	6	40	08	♃ 10 26
18	Tu.	—Showery and windy—Stormy in Gulf of	6	41	06	♃ 11 14
19	We.	St. Lawrence and along N. Atlantic Coast	6	42	04	♃ 11 59
20	Th.	(Equinoctial gales).	7	44	02	♃ Morn
21	Fri.	ST. MATTHEW.	7	45	00	♃ 0 43
22	Sat.		7	46	5 58	♃ 1 26

(39) 17th Sunday after Trinity. Saturn in Leo.

23	Su.	Rains and high winds—Fall-like, cool	8	5 47	5 56	♄ 2 09
24	Mo.	evenings and nights (frosts probable in	8	48	54	♄ 2 52
25	Tu.	Northern, Eastern and N. Western sec-	8	50	53	♄ 3 36
26	We.	tions)—Rains in West—Stormy—Wet	9	51	51	♄ 4 22
27	Th.	weather generally, especially in Mar.	9	52	49	♄ 5 10
28	Fri.	Prov. and Newfoundland.	9	53	47	♄ 5 59
29	Sat.	MICHAELMAS.	10	55	45	♄ 6 49

(40) 18th Sunday after Trinity. Uranus in Virgo.

30	Su.	Fine, favorable, breezy.	10	5 56	5 43	♅ 7 41
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PLANETS IN SEPTEMBER.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 min.; for Iowa, Nebraska, and Kansas, 1 h. 35 m., and the Pacific States, 3 h. 15 m.)

The Moon is very close to Saturn (0.34' N.) at 7.38 p.m. on the 3rd. Neptune is "stationary" at 7 a.m. on the 4th. On the 6th, at 6.13 p.m., Mercury is near the Moon, Luna passing Venus at 1.58 the next morning. At 2 a.m. on the 8th Uranus is S. of Luna, who reaches her Perigee at 6 a.m. on the 9th. The 11th is a day of Conjunctions. At 4.54 a.m. the Moon passes 6° 7' N. of Mars, and 10 minutes later is alongside Jupiter, Mars reaching Conjunction with, and passing 2° 12' S. of his giant brother at 9 a.m. At 10 p.m. on the 18th Mercury is 1° 39' S. of Venus, and at noon on the 19th, 1° 28' S. of Uranus, Venus reaching Conjunction with the latter 3 hours later, and passing 14' N. of her far away brother. On the 22nd at 10 a.m., the Sun enters the Equinoctial sign Libra, and Autumn commences; at 2 p.m. Mercury is but 55' N. of *Alpha Virginis (Spica)* and Jupiter at 8 p.m. is once more in close Conjunction 28' S. of *Beta Scorpii (Graffias.)* The 23rd, at 5 p.m., will see Mercury in Aphelion. On the 25th the Moon is at Apogee, at 2 a.m., and passes Neptune at 7.11 a.m.

WHAT THEY SAY ABOUT SMITH.

"Mr. Walter H. Smith's printed Weather Forecast for August 22nd read "tornadoes probable," and he calls attention to the fact that at 4 a.m. on August 23rd, a tornado passed north of London, Ont., through Thorndale, unroofing houses, blowing down trees, chimneys, etc. A few hours previous a hurricane swept the North Carolina coast."—*Star, Montreal.*

METEOROLOGIST SMITH, of Canada, insists that we shall henceforth have a summer characterized by burning skies, parching chinooks, burned vegetation and discomfort generally, broken by occasional cloud bursts and tornadoes. He says the drought will resemble the fearful one of 1819. Mr. Smith should not stand in with such a whopper. The people won't believe him now, anyhow.—*Oswego, N. Y., Palladium.*

We don't know who Meteorologist Smith is, but at present it looks as if his prediction were about to be verified.—*Spectator.*

10th MONTH.

OCTOBER.

31 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
● N.M.	5	9.54 mo.	9.40 mo.	9.26 mo.	8.44 mo.	8.09 mo.
☽ F.Q.	11-12	0.48 mo.	0.34 mo.	0.20 mo.	11.38 ev.	11.03 ev.
☉ F.M.	19	4.36 ev.	4.22 ev.	4.08 ev.	3.26 ev.	2.51 ev.
☾ L.Q.	27	9.15 ev.	9.01 ev.	8.47 ev.	8.05 ev.	7.30 ev.

DAYS.		WEATHER FORECAST.		MONTREAL.						
M.	W.			THE SUN			THE MOON			
				Fast	Rises.	Sets.	Zod.	Souths.		
		M.	H. M.	H.	M.	H.	M.	H.	M.	
1	Mo.			10	5 57	5 41	♈	♈	Morn	
2	Tu.			11	59	39	♉	♉	9 24	
3	We.	Fine, changing to cloudy, with cool rains—Sharp frosts in N. and E.—Stormy,		11	6 00	37	♊	♊	10 16	
4	Th.	with rain, sleet and high winds.		11	01	35	♋	♋	11 08	
5	Fri.			12	03	34	♌	♌	Eve.	
6	Sat.			12	04	32	♍	♍	0 54	

(41) 19th Sunday after Trinity.

Neptune in Taurus.

7	Su.	Warm, perhaps quite sultry, fine and favorable weather—Unsettled again, rainy		12	6 05	5 30	♈	♈	1 50	
8	Mo.	ST. DENIS. and stormy generally,		12	06	28	♈	♈	2 47	
9	Tu.	with high winds; gales on coast—Wet weather in majority of sections.		13	08	26	♉	♉	3 45	
10	We.	Columbus discov'd America, 1492.		13	09	25	♊	♊	4 44	
11	Th.			13	11	23	♋	♋	5 43	
12	Fri.			13	12	21	♌	♌	6 39	
13	Sat.			14	13	19	♍	♍	7 33	

(42) 20th Sunday after Trinity.

Mercury in Libra.

14	Su.	Generally fine Autumn weather, with occasional showers—Rains in Western States and Ontario—Unsettled, dark, wet,		14	6 15	5 17	♎	♎	8 24	
15	Mo.	ST. LUKE. sleety, snowy and windy at close.		14	16	16	♏	♏	9 11	
16	Tu.			14	18	14	♏	♏	9 57	
17	We.			15	19	12	♐	♐	10 40	
18	Th.			15	20	10	♑	♑	11 23	
19	Fri.			15	21	08	♑	♑	Morn	
20	Sat.			15	23	07	♒	♒	0 06	

(43) 21st Sunday after Trinity.

Venus in Libra.

21	Su.	Cool to cold weather (sharp frosts)—		15	6 24	5 05	♏	♏	0 48	
22	Mo.	Quite a wintry spell, with rain, sleet and high winds—Cool, fine and frosty. (A winter-like week.)		15	25	03	♏	♏	1 32	
23	Tu.			16	26	01	♐	♐	2 18	
24	We.			16	28	00	♐	♐	3 04	
25	Th.			16	29	4 58	♑	♑	3 53	
26	Fri.			16	31	57	♑	♑	4 42	
27	Sat.			16	32	55	♒	♒	5 32	

(44) 22nd Sunday after Trinity.

Mars in Sagittarius.

28	Su.	Changeable; stormy in Gulf and North Atlantic; cold weather, with rain S. and snow N.		16	6 33	4 53	♐	♐	6 22	
29	Mo.	Astro-Meteorological Association founded 1884.		16	35	52	♑	♑	7 13	
30	Tu.	All Hallow's Eve.		16	36	50	♒	♒	8 03	
31	We.			16	38	49	♒	♒	8 54	

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PLANETS IN OCTOBER, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas, deduct about 15 min.; for Iowa, Nebraska, and Kansas, 1 h. 35 m., and the Pacific States, 3 h. 15 m.)

The month opens with a Conjunction of Saturn and the Moon, Saturn being 56' S. of Luna at 10.30 a.m. On the 5th, at 2.10 p.m., Uranus is near the Moon; on the 6th, at 10.57 p.m., Venus, and at 0.14 a.m. on the 7th, Mercury. At 1.22 a.m., on the 7th, Luna is at Perigee. Mercury is well placed for viewing in the evening, he reaching his greatest elongation East of the Sun, of 25° 14' at 11 a.m. on the 8th. The Moon is close to Jupiter the same evening at 7.45. On the 9th, at 6 p.m., Mercury and Venus are 3° 9' apart, and Mars is 4° 38' S. of the Moon at 10.23 p.m. On the 10th, at 8 a.m., Uranus is in Conjunction with the Sun. The 20th has Mercury "stationary" at 7 a.m., and the 22nd has Neptune 2° 23' N. of the Moon at 1.11 p.m., the latter being at Apogee at 5.15 that afternoon. Saturn is near the Moon at 11.17 p.m. on the 28th, and Mercury reaches Inferior Conjunction with the Sun at 7 p.m. on the 31st.

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11th MONTH.

NOVEMBER.

30 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
● N.M.	3	7.22 ev.	7.08 ev.	6.54 ev.	6.12 ev.	5.37 ev.
☽ F.Q.	10	0.35 ev.	0.21 ev.	11.07 mo.	10.25 mo.	9.50 mo.
☾ F.M.	18	10.35 mo.	10.21 mo.	10.07 mo.	9.25 mo.	8.50 mo.
☾ L.Q.	26	0.40 ev.	0.26 ev.	0.12 ev.	11.30 mo.	10.55 mo.

DAYS.	WEATHER FORECAST.	MONTREAL.					
		THE SUN			THE MOON		
M.	W.	Fast	Rises.	Sets.	Zod.	Souths.	
1 Th.	ALL SAINTS. Fine—Cloudy,	16	6 39	4 47	♌	Morn	
2 Fri.	squally, unsettled, with high winds.	16	41	46	♌	10 38	
3 Sat.	(Gales on Lakes.)	16	42	44	♍	11 33	

(45) 23rd Sunday after Trinity. Jupiter in Ophiuchus.

4 Su.	Warmer, fine and pleasant—Stormy	16	6 44	4 43	♍	Eve.
5 Mo.	and cold, with rain, sleet or snow, accord-	16	45	41	♎	1 30
6 Tu.	ing to locality—Variable, with strong	16	47	40	♎	2 31
7 We.	winds; gales on Atlantic Seaboard—	16	48	39	♏	3 32
8 Th.	Cloudy and rainy.	16	50	38	♏	4 32
9 Fri.	Prince of Wales born 1841.	16	51	37	♏	5 28
10 Sat.		16	53	35	♏	6 21

(46) 24th Sunday after Trinity. Saturn in Leo.

11 Su.	MARTINMAS. Cold, with	16	6 54	4 34	♐	7 10
12 Mo.		16	55	33	♐	7 56
13 Tu.	snow N., rains S.—Stormy and unsettled,	15	57	31	♐	8 40
14 We.	rains and snow flurries—Overcast, cool	15	58	30	♑	9 22
15 Th.	weather—End of week windy, snow, sleet	15	7 00	29	♑	10 04
16 Fri.	or rain.	15	01	28	♑	10 47
17 Sat.		15	02	27	♑	11 30

(47) 25th Sunday after Trinity. Uranus in Virgo.

18 Su.		15	7 03	4 26	♒	Morn
19 Mo.	Cold weather for the season—Fine,	14	04	25	♒	0 15
20 Tu.	with sharp frosts (a November "dip")	14	06	24	♒	1 01
21 We.	below zero in N. W.—Cloudy and dull,	14	08	23	♓	1 49
22 Th.		13	09	22	♓	2 38
23 Fri.	with rain S., sleet and snow N.	13	10	22	♓	3 27
24 Sat.		13	12	21	♓	4 17

(48) 26th Sunday after Trinity. Mercury in Libra.

25 Su.	ST. CATHERINE. Snow	12	7 13	4 21	♎	5 06
26 Mo.	storms and high winds—Wintry weather	12	14	20	♎	5 55
27 Tu.	general—Very cold for the season, quite	12	15	20	♎	6 44
28 We.	a severe "dip" in Northern sections, with	11	16	19	♎	7 33
29 Th.	waters ice-locked—Month ends snowy	11	18	19	♏	8 23
30 Fri.	ST. ANDREW. and windy.	11	19	18	♏	9 15

PLANETS IN NOVEMBER, 1888.

MONTREAL MEAN TIME.

(For Virginia and the Carolinas deduct about 15 min.; for Iowa, Nebraska, and Kansas, 1 h. 35 m., and the Pacific States, 3 h. 15 m.)

The Moon, prior to her Conjunction with the Sun, passes N. of Uranus at 3.45 a.m. on the 2nd, and is N. of Mercury at 6.57 a.m. on the 3rd. On the 4th, the Moon is at Perigee at 9.23 a.m., passing Jupiter at 2.27 p.m. on the 5th, and Venus at 9.40 the same evening. Mercury is in Perihelion at 5 p.m. on the 6th, Mars near the Moon at 7 p.m. on the 7th, and Mercury "stationary" at 3 p.m. on the 8th. At 6 p.m. on the 11th, Saturn is 90° from the Sun (Quadrature, and overhead at 6 a.m.) At 9 a.m. on the 13th, Venus is in Aphelion, her little brother Mercury being at greatest elongation West of $19^\circ 34'$ on the 17th at 1 a.m., when he should be easily seen before daybreak. The nearly full moon is $2^\circ 20'$ S. of Neptune at 6 p.m. on the 18th, when Luna is at Apogee at 10.23 p.m., Neptune reaching Opposition on the 22nd at 1 p.m. when he is overhead at midnight. Saturn is S. of the Moon at 8.11 a.m. on the 25th, and Uranus S. of the Moon at 4.43 p.m. on the 29th. Saturn is "stationary amongst the stars" at 4 p.m. on the 30th.

PLANETS IN DECEMBER, 1888.

The last month of 1888 opens with the Moon near Mercury at 3.51 a.m. on the 2nd, and the Moon in Perigee at 10.18 p.m. the same day. Jupiter is $2^\circ 38'$ S. of Luna on the 3rd at 11.44 a.m., Mars reaching Perihelion at 1 p.m. that day. Venus is near the Moon at 9 p.m. on the 5th, and the Moon passes N. of Mars ($15'$) at 5.28 p.m. on the 6th, Jupiter is at Conjunction and passes behind the Sun on the 8th at 6 p.m. On the 15th, at 10.39 p.m., Neptune is near the Moon, Luna making her Apogee passage at midnight. Mercury is $1^\circ 18'$ S. of Jupiter at 1 a.m. on the 17th. On the 20th, at 5 p.m., Mercury reaches Aphelion. At 4 a.m. on the 21st the Sun enters *Capricorn*, and Winter commences. The next day, at 1.10 p.m., Saturn is $1^\circ 32'$ S. of

12th MONTH.

DECEMBER.

31 DAYS.

Moon's Phases	Day.	BOSTON.	MONTREAL.	WASHINGTON	CHICAGO.	OMAHA.
● N.M.	3	5.25 mo.	5.11 mo.	4.57 mo.	4.15 mo.	3.40 mo.
◐ F.Q.	10	2.05 mo.	1.51 mo.	1.37 mo.	0.55 mo.	0.20 mo.
☉ F.M.	18	6.00 mo.	5.46 mo.	5.32 mo.	4.50 mo.	4.15 mo.
☾ L.Q.	25-26	1.19 mo.	1.05 mo.	0.51 mo.	0.09 mo.	11.34 ev.

DAYS.	WEATHER FORECAST.	MONTREAL.			
		—THE SUN—		THE MOON	
M. W.		Fast.	Rises.	Sets.	Zod. Souths.

1 Sat.	Cold, with snows and rains.	M. 11	H. 7	M. 20	H. 4	M. 18	M. ♄	H. Morn
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(49) 1st Sunday in Advent.

Venus in Sagittarius.

2 Su.		10	7	21	4	18	♃	11 08
3 Mo.	A mild period, with rain and sleet—	10		22		17	♃	Eve.
4 Tu.	Colder, with high winds and snows—	9		23		17	♃	1 13
5 We.	Generally cold, brilliant zero weather—	9		24		16	♃	2 16
6 Th.	Milder, with snow falls at close.	9		25		16	♃	3 16
7 Fri.		8		26		16	♃	4 13
8 Sat.	Conception B. V. M.	8		27		16	♃	5 05

(50) 2nd Sunday in Advent.

Mars in Capricornus.

9 Su.		7	7	28	4	16	♂	5 53
10 Mo.	Mild for the season, with wet snow N.	7		29		16	♂	6 38
11 Tu.	and rains S.—A thaw, generally fine,	6		30		16	♂	7 21
12 We.		6		31		16	♂	8 03
13 Th.	balmy and mild—Colder, windy and un-	5		32		17	♂	8 45
14 Fri.	settled, with snow close of week.	5		33		17	♂	9 28
15 Sat.		5		34		17	♂	10 12

(51) 3rd Sunday in Advent.

Jupiter in Ophiuchus.

16 Su.		4	7	35	4	17	♃	10 58
17 Mo.	Another "dip," low ther. readings;	4		36		18	♃	11 46
18 Tu.	high winds, snows and drifts—Fine	3		37		18	♃	Morn
19 We.	winter weather, with high winds—Very	3		38		19	♃	0 34
20 Th.	cold 18th to 21st—End of week cloudy	2		38		19	♃	1 24
21 Fri.	and milder, with snow.	2		39		20	♃	2 14
22 Sat.	ST. THOMAS.	1		39		20	♃	3 04

(52) 4th Sunday in Advent.

Saturn in Leo.

23 Su.	Milder, a thaw probable, with soft snow,	1	7	40	4	21	♄	3 53
24 Mo.	sleet and rain—Sudden change to cold;	0		40		21	♄	4 40
25 Tu.	CHRISTMAS. low readings	0		40		22	♄	5 28
26 We.	ST. STEPHEN. 25th to 27th	1		40		23	♄	6 16
27 Th.	ST. JOHN EVANGELIST.	1		41		23	♄	7 05
28 Fri.	—High winds, unsettled, with snows and	2		41		24	♄	7 56
29 Sat.	rains—Milder.	2		41		25	♄	8 50

(53) Sunday after Christmas.

Uranus in Virgo.

30 Su.	Henry G. Vennor born 1840. MIA,	3	7	41	4	25	♃	9 48
31 Mo.	thawing, slush and rain E.; cold W. & N.W.	3		41		26	♃	10 50

the Moon, Luna overtaking and passing Uranus at 2.44 a.m. on the 27th. On the 28th, at 2 p.m., Mercury is at Superior Conjunction, passing behind the Sun. On the last day of the old year the Moon is $2^{\circ} 11'$ N. of Jupiter at 9 a.m., at Perigee (nearest the Earth) at 10.16 a.m. and the Sun is also in Perigee (nearest the Earth) at 2 p.m.

LUNAR INFLUENCE ON VEGETATION.

Very many grateful letters expressing thanks for my 1887 Lunar Tables, have reached me during the year; some of them proving incontestably that the theory of Lunar Influence on Vegetation has its foundation in fact, and is, accordingly, as I have frequently declared, a legitimate part of the Science of Astro-Meteorology. My personal experiments, as first explained in the ALMANAC for 1884, continue to bear out the theory to a remarkable degree. But while many have proved by experiment and are rejoicing at their success, others have not proved and do not believe. Let all such pay a visit to the sea shore, and watch the tide come in. They will there see one effect of the Moon. They will also find that the highest tides occur at "New Moon," when Sun and Moon are together,

"Bending one way their precious influence."

Weather records prove that great disturbances take place when the Sun and Moon are in Conjunction, especially when in line with the Earth (at the equinoxes.) Therefore these bodies not only influence the oceanic, but the ærial tides and magnetic currents. Weather records also show that at the Perigee passage of the Moon, when she is nearest the Earth, that the warmth of the atmosphere usually increases, and that the opposite effect is noticed at the Apogee passages, when the temperature usually falls.

If one set of atoms can thus be influenced, why not another set? In fact, what sense is there in denying that every atom, every orb, influences every other atom or orb in a ratio according to proximity, rapidity of motion, density, etc. Look how that sluggish of a comet is aroused, stirred up into an activity that becomes almost delirious in its action, as it approaches the Sun, or how it is forced, even, to pursue an

entirely new orbit by approaching closer than usual to one of the planets! And still, with the hands of the dial of heaven plainly indicating planetary influence, men who pride themselves on their understanding, declare that such things do not exist. What an anomaly.

That enquirers after truth may successfully experiment and those who have already proved this theory's efficacy be guided another year, I print the following tables; remarking as before, that sowing and transplanting is always best done between "new" and "full" Moon (at the times named), but that ploughing, manuring, etc., should be accomplished from after the "last quarter" of the Moon until she becomes "new;" this is also the best time to destroy weeds, etc. Things requiring a level growth and yield are best set or sown, with Libra rising, in the Spring. In the Fall, the most productive sign seems to be Pisces, which rises in the afternoon. Nothing can exceed the productiveness of all kinds of running plants, sown or set, with Libra rising, during the afternoons of Spring.

A good many write to me for "special times for special things." These I am glad to answer, but would remind them that *a stamp should always be enclosed for a reply.*

*SEED SOWING.—1888.

LATITUDE 35°.

Favorable times for sowing and transplanting in Virginia, West Virginia, North and South Carolina, Georgia, Kentucky, Tennessee, Arkansas, Southern Missouri, Northern Texas, Arizona, Indian Territory, New Mexico, California, and all places in North America at or near Latitude 35° N.

JANUARY.—The 16th and 17th for crops of upward tendency—whose fruit is above ground—from 9.15 to 10.30 a.m., when ♄ is in ♋ rising; also same days, from 11.45 a.m. to 1.10 p.m., when ♄ is rising. For root crops, try the 21st, 22nd and 23rd, from 9.00 to 10.15 a.m.; when ♄ is in ♌ and ♋ rising; for garden truck and things of top growth the

* The local time at the places mentioned is meant in every case.

same dates from 11.30 a.m. to 1.00 p.m. when δ rises with ζ therein; also 21st and 22nd only, 3.00 to 5.00 p.m., with ζ rising, for grain, vines and other things of similar growth. The 26th and 27th will see ζ in ζ with κ rising, from 8.15 to 9.30 a.m., and δ rising from 10.50 a.m. to 12.15 noon, when root crops and potatoes should be set. On these days from 2.15 to 4.25 p.m., ζ rises, when things of top growth should be sown.

FEBRUARY.—The 13th and 14th will have ζ in κ and κ rising from 7.15 to 8.30 a.m.; δ rising from 9.50 to 11.10 a.m.; and ζ rising (13th only) from 1.10 to 3.20 p.m. All these times are excellent for sowing, setting or transplanting things whose growth and fruiting are principally above ground, such as grain, fruits, vines, etc. The 17th and 18th has ζ in δ . On the 18th κ rises from 7.10 to 8.25 a.m., good for roots. On the 17th and 18th δ rises from 9.45 to 10.10 a.m., and ζ from 12.30 noon, to 2.40 aft., both of which times are good for things of top growth. The 22nd, 23rd and 24th when ζ is passing through ζ are very good for roots, from 6.25 to 7.40 a.m., with κ rising. The 22nd and 23rd only with δ rising, 9.00 to 10.45 a.m., is good for roots, and ζ rising, 12.25 noon, to 2.35 aft., is good for other things.

MARCH.—The 16th and 17th have ζ in δ , with κ rising, from 5.20 to 6.35 a.m., (good for roots); δ rising, 7.55 to 9.00 a.m., and ζ rising 11.20 a.m. to 1.30 p.m., excellent for all things needing top growth. The 21st and 22nd have ζ in ζ with κ rising, from 5.00 to 6.10 a.m., and δ rising from 7.30 to 9.00 a.m. These times are good for roots, and the same days from 11.15 a.m. to 1.20 p.m., when ζ is rising, are good for other things. On the 27th, ζ is in κ with δ rising, from 6.55 to 8.20 a.m., and (ζ rising) 10.20 a.m. to 12.30 noon. Excellent for roots. The same day when κ rises, with ζ therein, is good for other crops from 5.35 to 8.00 p.m.

APRIL.—The 12th and 13th with the ζ in δ rising from 6.15 to 7.45 a.m., ζ rising 9.40 to 11.50 a.m., and κ rising, 4.55 to 7.20 p.m., are excellent for grain, vines and all things needing top growth. The 17th and 18th when ζ is in ζ

with ☿ rising, are good from 5.45 to 7.10 a.m., for roots and other crops of downward growth. These days, from 9.20 to 11.20 a.m., and 4.25 to 6.50 p.m. are excellent for corn, squash, vines and all other crops of upward tendency, when ♄ and ♃ are rising. On the 23rd and 24th ☾ is in ♃ rising, from 4.00 to 6.20 p.m. Good for top growth, grain, etc. On the 24th and 25th, when ☿ rises, plant root crops; also same dates 8.40 to 10.50 a.m.

MAY.—The 14th and 15th are favorable dates for things needing top growth when ☾ is rising in ♄ from 7.20 to 9.30 a.m., and ♃ rising, 2.35 to 5.00 aft. On the 21st and 22nd ☾ is in ♃ and ♄ rises from 7.00 to 9.10 a.m., (good for root crops); ♃ rises from 2.00 to 4.20 p.m., (good for grain, vines, etc).

JUNE.—The 11th and 12th see ☾ in ♄ rising from 5.35 to 7.45 a.m., good for crops of upward growth, as is also the 12th, from 12.50 noon, to 3.15 p.m., when ♃ rises. The ☾ reaches ♃ on the 18th, and rises from 12.00 to 2.05 aft. (Also good for upward growth).

JULY.—The 14th, from 11 a.m. to 12.30 noon, has ☾ rising in ♃ as well as the 15th and 16th, from 10.30 to 12.30 noon.

AUGUST.—The 11th and 12th with ☾ in ♃ rising, is good for upward growth, and the 21st and 22nd, from 8.00 to 10.25 a.m. are good, when ☾ is in ♃ with ♃ rising.

SEPTEMBER.—The 7th and 8th has ☾ in ♃ rising from 7.10 to 9.35 a.m., and the same days ☿ rises from 5.45 to 7.00 p.m. These times are all good for sowing fall grain. The 18th and 19th, with ☾ in ♃ and ♃ rising, from 6.15 to 8.40 are good for roots, etc., and ☿ rising, 5.00 to 6.15 aft., for fall grain.

OCTOBER.—The 15th and 16th will see ☾ in ♃ rising, from 3.00 to 4.10 p.m., good for sowing grain.

NOVEMBER.—The 12th has ☾ in ♃ rising, from 1.00 to 2.20 aft.

DECEMBER.—The 9th and 10th, from 11.30 to 12.55 noon, has ☾ in ♃ rising.

LATITUDE 40°.

Favorable times for sowing in Maryland, District of Columbia, Pennsylvania, Delaware, New Jersey, Southern New York, Rhode Island, Connecticut, Ohio, Indiana, Southern Illinois, Northern Missouri, Iowa, Kansas, Nebraska, Utah Territory, Nevada, Colorado, and all places at or near the latitude of 40° North. (For Moon's place in Zodiac see Calendar pages or table for Latitude 35° N.)

MARCH.—The 16th and 17th, from 5.25 to 6.35 a.m., for roots; other things, 7.50 to 9.10 a.m., and 11.10 a.m. to 1.20 aft. The 21st and 22nd, 5.00 to 6.05 and 7.25 to 8.50 for roots; 11.05 a.m. to 1.10 p.m., other things. The 27th, 7.00 to 8.20 a.m., and 10.15 a.m. to 12.20 noon, for roots, and 5.40 to 8.10 p.m., for top growth.

APRIL.—The 12th and 13th from 6.00 to 7.20 a.m.; 9.20 to 11.30 a.m., and 4.45 to 7.15 p.m., are all good for garden truck, grain, vines and other things of top growth. The 17th and 18th, from 5.30 to 6.50 a.m., are good for sowing root crops, and the same days from 9.10 to 11.10 a.m., and 4.25 to 7.00 p.m., for other things. The 23rd and 24th, from 3.55 to 6.20 aft., are good for things whose growth is above ground, such as corn, grain, vines, etc. The 24th and 25th from 5.55 to 6.25 a.m., and the 24th, from 8.30 to 10.45 a.m., are good for roots, etc., whose growth is below the surface.

MAY.—The 14th and 15th, from 7.10 to 9.20 a.m., and 2.35 to 5.05 aft., are good for things of top growth. The 21st and 22nd, from 6.45 to 8.45 a.m., are good for roots, and 2.00 to 4.30 p.m., for vines, grain, corn, squash, etc.

JUNE.—The 11th and 12th, from 5.15 to 7.30 a.m., and 12.30 noon to 3.00 aft., are good for all kinds of growth above ground. The 18th, from 4.50 to 7.00 a.m. is good for roots, and the same day, from 12.10 noon to 2.40 aft., for top growth.

JULY.—The 15th and 16th, from 10.30 a.m. to 12.35 noon, are good for things that fruit above ground.

AUGUST.—The 11th and 12th, from 8.35 to 11.00 a.m., are good for growth above ground, and the 21st and 22nd, from 8.00 to 10.30, for things whose growth is below ground.

SEPTEMBER.—The 7th and 8th, from 7.10 to 9.40 a.m., and 5.50 to 7.00 aft., are especially good for sowing fall grain. The 18th and 19th, from 6.15 to 8.40 a.m., and 5.00 to 6.15 aft., are also good, especially the latter, for fall grain.

OCTOBER.—The 15th and 16th, from 3.15 to 4.15 aft.

NOVEMBER.—The 12th, from 1.30 to 2.30 aft.

LATITUDE 45°.

Favorable times for sowing in Massachusetts, New Hampshire, Vermont, Maine, Nova Scotia, New Brunswick, Prince Edward Island, Quebec, Ontario, Northern New York, Michigan, Northern Illinois, Wisconsin, Southern Minnesota, Southern Dakota, Southern Idaho, Wyoming, Southern Montana, Oregon, Southern Washington Territory and all places in North America at or near Latitude 45° North. (For Moon's place in Zodiac, see Calendar pages, or table for Latitude 36° N.)

APRIL.—The 12th and 13th, from 6.00 to 7.15 a.m., 9.10 to 11.25 a.m. and 4.50 to 7.25 aft., are good for grain, vines, and all things similar. The 17th and 18th are good for roots, from 5.35 to 6.45 a.m.; and for other things, 8.55 to 11.00 a.m., and 4.25 to 7.10 aft. The 23rd and 24th, from 3.55 to 6.30 aft., are good for grain, vines, etc., the 24th and 25th, from 5.00 to 6.10 a.m., for roots, as well as the 24th, from 8.10 to 10.25 a.m.

MAY.—For grain, vines, and things requiring top growth; the 14th and 15th, from 6.55 to 9.10 morn., and (same days) 2.35 to 5.15 aft. The 21st and 22nd are good for roots and things of underground growth, from 6.15 to 8.45 a.m., and for top growth, vines, squash, grain, etc., the same days, from 2.00 to 4.30 aft.

JUNE.—The 11th and 12th, from 5.10 to 7.25 a.m., and 12.35 to 3.00 p.m., are good for top growth. The 18th, from 12.00 noon to 2.35 aft., is another excellent time.

JULY.—The 14th, from 11.00 a.m. to 1.20 aft., and the 15th and 16th, from 10.30 a.m. to 1.20 aft., are the best dates.

AUGUST.—The 11th and 12th, from 8.40 to 11.15 morn., are good, also the 21st and 22nd, from 8.00 to 10.35 a.m.

SEPTEMBER.—The 7th and 8th, from 7.00 to 9.40 morn., and 6.00 to 7.00 eve., are good, the latter especially, for grain. The 18th and 19th, from 6.15 to 8.50 a.m., and 5.15 to 6.15 aft., are also good dates.

OCTOBER.—The 15th and 16th, from 3.25 to 4.20 aft.

LATITUDE 50°.

Favorable times for sowing in Newfoundland, Manitoba and the North-West Territories, Northern Dakota, Northern Montana, Northern Minnesota, Northern Washington Territory, Northern Idaho, British Columbia, and all places in North America, at or near Latitude 50° North. (For Moon's place in Zodiac see Calendar pages, or table for Lat. 35° N.)

MAY.—The 14th and 15th, from 6.35 to 8.50 a.m., and 2.35 to 5.25 aft., are excellent for grain, corn, vines and all things of top growth. The 21st and 22nd are best for roots and things whose growth is below the surface, from 6.00 to 8.35 a.m., and for grain, corn, vines, etc., from 2.00 to 4.50 aft.

JUNE.—The 11th and 12th, from 4.50 to 7.05 a.m. and 12.50 noon to 3.40 aft. are the best dates for all things requiring top growth. Another excellent time is the 18th, from 12.00 noon to 2.50 aft.

JULY.—The 14th, 15th and 16th are best, from 10.30 a.m. to 1.20 aft.

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Vegetable Plants, Small Fruits, etc.

AUGUST.—The 11th and 12th, from 8.35 to 11.15 a.m., and 21st and 22nd, 8.00 to 10.50 a.m.

SEPTEMBER.—For fall grain, the 7th and 8th are best, from 7.05 to 9.55 a.m., and 6.05 to 6.55 aft. Other good times this month are 18th and 19th, from 6.15 to 9.05 a.m. and 5.25 to 6.15 aft.

THE ASTEROIDS.

CERES was at opposition on October 10, 1887. On January 1, 1888, her Right Ascension is 1h. 2m. 43s.; Declination South, $2^{\circ} 28' 25''$. On December 15, 1888, her Right Ascension is 8h. 40m. 11s.; Declination North, $26^{\circ} 32' 52''$.

PALLAS is at opposition on November 23, 1888. Her Right Ascension is then 4h. 42m. 14s.; Declination South, $31^{\circ} 22' 10''$. This spot is in the Constellation *Eridanus*, below *Lepus*.

JUNO was at opposition on October 15, 1887. On January 1, 1888, her Right Ascension is 1h. 46m. 26s.; Declination South, $5^{\circ} 0' 18''$.

VESTA is at opposition on September 29, 1888. Her Right Ascension is then 0h. 45m. 41s.; Declination $8^{\circ} 7' 56''$ South. This spot is in the Constellation *Cetus*, North-East of the star *Phi Ceti*.

MOONLIGHT EVENINGS OF 1888.

January.—From the 21st to the 30th inclusive.

February.—Beginning with the 19th and lasting to the 28th.

March.—Between the 20th and the 29th.

April.—From the 19th up to and including the 28th.

May.—From the 18th to the 27th.

June.—From the 17th up to the 25th.

July.—From the 16th to the 25th.

August.—From the 14th to the 23rd.

September.—Between the 12th and 23rd.

October.—From the 12th to the 21st.

November.—From the 10th to the 20th.

December.—Beginning on the 10th and continuing to the 20th.

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The Astro-Meteorological Association.

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TREASURER:—J. BROWN, Montreal.

HOW I FORECAST THE WEATHER.*

By WALTER H. SMITH,
President of the Astro-Meteorological Association.

THERE is nothing ridiculous in this theory (Planetary Influence), however hard it may be to prove or explain. Every atom in the Universe must be acted upon by every other atom, else where is Newton's theory of gravitation? Man himself, composed of particles and imbued with spirit, draws magnetically his fellow man, and calls it liking, friendship, love. Analyze affection—it becomes animal magnetism—

*Part of a lecture delivered by request, before the Protestant Workmen of Montreal, Jan., 1887. Read also as a paper before the Central Committee of the Astro-Meteorological Association.

analyze the influence of the poet, the singer, the orator, the hero, is it not the same? Therefore I claim that if the Sun can raise the temperature, and the Moon the tides, that Sun, Moon and Planets combined can surely move the air—a much lighter fluid than water, as well as alter the magnetic currents as they flow from the North and South Polar regions to the equator and back again. Great storms on the Sun often coincide with the grandest and most far-reaching auroral displays on the Earth. I have seen great changes in the belts that encompass the planet Jupiter at such times, proving that Astro-Meteorology is correct when it claims that each member of the Sun's family is but a part of one harmonious whole.

To explain the theory of influences. Suppose we have three or four of the outer planets in the same portion of the heavens—as seen from the Sun—as the Earth in the Summer time. In such case, the Earth gets not only her own share of the Sun's heat and influence, but part of the others' also. That Summer I should, therefore, forecast as abnormally hot, and the following Winter when the Earth is consequently alone in space, as abnormally cold. On the contrary, suppose the majority of the larger planets are away beyond and behind the Sun in the Summer, then the Summer is cool and the Winter is mild. The simplicity of my argument must surely commend itself. There is, in fact, nothing illogical or foolish in Astro-Meteorology. In the solar system there is always a "tag-of-war" going on for the best share of the Sun's heat and vitalizing forces; sometimes the Earth is on the heaviest side, sometimes on the lightest. When the planets are pretty evenly distributed around the Zodiac the conditions become normal.

But how are these forces transmitted? White, as far back as 1844, appears to have struck the keynote in answer. He says:—

"Modern philosophy has taught man that space is filled with a rare, but imperceptible medium, which fills all space; its nature bears close analogy to the electric fluid, and hence it acts as the conducting medium between the bodies, composing not only the solar system, but probably the boundless universe. It is neither irrational nor unphilosophical to conceive that the various planets in their motions may give to this rare

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medium a wave-like motion, which motion, from the extreme rarity of the fluid, will continue, like the waves made by plunging a heavy substance into a lake of still water.

Having touched on general causes, let us proceed to particularize. You will say, "Because the planets show generally a hot or cold season is no reason why you should forecast a cold 'dip,' say on the 4th; a 'mild spell' on the 13th; a 'general storm period' on the 19th, and 'fine seasonable weather' on the 15th of a certain month." Very true. To make such forecasts we need to have further recourse to Astronomy. I usually make my *Planetary Almanac* forecasts in the Summer. Let us suppose we are making the calculations for 1888. We take twelve pages and mark the dates of the month on them, one date on each line. We next need the planetary conjunctions, etc. These we take from the British and American *Nautical Almanacs*, which ephemerises are published a year or two in advance, and give the places of Sun, Moon, planets and stars for each day in the year, for the use of astronomers and mariners. Such positions and aspects we copy opposite their several dates in a second column. Placing the *Nauticals* on one side, we produce our weather records, kept Astro-meteorologically; that is to say, each day's weather and temperature has been entered, and alongside these the planetary conjunctions and other positions recorded. Familiar with what has occurred in the past, under certain conditions, the Astro-Meteorologist believes that, (I quote the words of my first Vice-President, Prof. Mansill, of Rock Island, Ill.) :—

"The Perihelion and Aphelion passages of the planets, the Oppositions and opposite positions of the superior planets, the Inferior and Superior Conjunctions of the inferior planets and the eclipses of the Sun and Moon are the leading causes of atmospheric disturbances."

The planet Mercury, nearest the Sun, claims first notice. He is scarcely 3,000 miles in diameter, little larger than our Moon, and only seen by practised eyes for one or two mornings at a time, prior to sunrise, and the same number of evenings after sunset. Owing to his revolving around the Sun in such close proximity to the latter, Mercury, however, is the planet most frequently at Perihelion and Aphelion, and therefore the cause of most Earth storms. "Perihelion," I should explain, means "nearest the Sun," "Aphelion,"

"farthest from the Sun." To further explain this, all planets move in elliptical or one-sided orbits around the Sun; Mercury, the most one-sided of them all, he being when at Aphelion 42,665,560 miles from the sun, whereas at Perihelion he is but 28,119,716, a difference of some 14,000,000 miles in a mean of about 37,000,000.

All planets move at slightly different inclinations to the Earth, but Mercury exceeds the rest of the primary planets. Because of these peculiarities, as well as his great density, Mercury has first to be considered by us in forecasting future weather. At least one-half the probable stormy, snowy periods, with high winds, that visit these latitudes in Winter, and the variable, gusty, unsettled terms that come to us in the Summer and Spring, may be calculated from his positions.

Supposing, therefore, we have marked opposite one date in our second column "Mercury at Perihelion," we shall find on searching back our records for, say, seventeen consecutive Perihelions of Mercury, that we have had at Montreal alone, without going outside for corroboration of Astro-Meteorology, 13 cases of high winds, wind storms and great gales within 24 hours of the position; heavy rain or snow, 13; light ditto, 1; very cold, 4; no disturbance, 0. Therefore the forecast should be: "Generally stormy, rain (or snow) and high winds, extreme temperatures at times." We at once write in the "high wind," but look to see what the other positions indicate before we decide whether the downfall is likely to be rain or snow. This done we consider the next position of this planet, and so on throughout the year.

Finished with Mercury, we take up Venus. This planet is almost exactly the size of our Earth, and its nearest neighbor, being distant from us when directly between us and the Sun not more than 25,000,000. Surely everyone here knows Venus, so frequently the brilliant evening star, hanging for two or three hours after sunset in the western sky! As may be supposed, this planet can raise storms as easily as Mercury, but less often, owing to her slower motion. Searching the records, we find Venus more decidedly pluvial than Mercury, bringing down the rain in abundance, especially at Inferior Conjunction.

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Now we have got to the Moon. The general ideas about Astro-Meteorologists are, I am afraid, somewhat hazy. People have a notion that we forecast weather at or from the change of the Moon. Now this is just what we do not. It is we who have exploded the ridiculous fallacy of cold weather for a whole month because the new Moon happened to come in cold, or hot weather for a month because it came in hot. Not but what the Moon has a great influence, and just because she has is one very good reason for disbelieving that it will be cold or hot, according to her change, for a whole month. The Lunar theory as regards weather forecasting is too elaborate for me to do more than touch upon here. The Moon's orbit is not a circle any more than the Earth's or Mercury's. Once, sometimes twice, in a calendar month she is at "Apogee,"—farthest from the Earth—once, sometimes twice, at "Perigee,"—nearest the Earth. Her Apogee passages are frequently cold, her Perigees as frequently warm. We give her credit for this, jotting down the rest of the Lunar probabilities, taking besides only her Conjunctions with the Sun, and letting all minor aspects, such as "first" and "last" quarter, slide. Her Conjunctions with the planets we take, but consider them of secondary importance, coinciding as they do with minor changes, such as light local rains and slight meteorological changes. At her Ecliptic Conjunctions with the Sun we find the Earth answering with a general storm period, and that of no mean order. From this appears to come the general belief in Equinoctial storms.

Mars, next outside the Earth, and distant some 34,000,000 miles at his nearest approach, we credit with anticipated electrical changes at his positions. Perhaps it is worth while to enquire here, how it was that the ancients connected this planet with strife and war! Because of his fiery hue? Not so. Many of the fixed stars are quite as red, and for a fiery glare commend me to the Sun. They had noticed, as Cicero indicates, that there is more in Mars than his lustre; nor Cicero alone, Pliny says that Mars is strong in his influence for "rampant weather." Mars, according to my diary, appears to raise the temperature to an abnormal degree before his Oppositions or Perihelions, then checks the magnetic

currents as the aspect is accomplished and gives us a reactionary cold spell. First Mars attracts from us the accumulated electricity; afterwards, when the temperature falls, Mars pours—if I may so explain it—fresh electricity into the Earth. Do you see anything ridiculous in this? Is it not rather a sublime arrangement of an All-Wise Creator for the prevention of utter stagnation in our oceans of water and oceans of air, allowing them by constant motion to be continually purified?

We next consider Jupiter, the giant planet. The largest of all, with a diameter of 84,000 miles, as compared with the Earth's 7,900, he has been credited by some Astro-Meteorologists with the earthquakes in South Carolina and elsewhere. That is, we credit his position with helping to cause the very dry weather favorable to earthquakes, and the Moon's positions at the time, with bringing on the changes of magnetic equilibrium, which caused the shocks. I am in possession of tables from an observer at Charleston, which show that nearly every shock—numerous as they were—occurred when the Moon came to aspect or position with Sun or planets. Delauney, from tables reaching as far back as 1750, decides that earthquake maxima occur every twelve years. Jupiter's revolution occupies twelve years. In an approximate table for future earthquakes, printed several years ago, he indicated the years 1886, 1891, 1898, 1900 and so on, as likely to be earthquake years. The intermediate dates he credits to the position and influence of Saturn. "Fine weather," according to the patriarch Job, "cometh out of the North." Job to-day would have been an Astro-Meteorologist, because he also talks of the "Influences of the Pleiades" and the "Bands of Orion." The "Influences" are doubtless the gentle rains of Spring, which fall when the Sun is near those "Seven Stars," and the "Bands of Orion" the frost which prevails when that constellation is visible—the long nights of our Northern Winters. That "fine weather cometh out of the North," all of us know, when we experience the "high pressure" and sparkling crispness of atmosphere that accompanies one of our "cold dips." In searching the weather records, we agree with Job, finding that the positions of Jupiter, in his rela-

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tions to the Sun, are usually accompanied by fine, cold, dry weather and North and North-West winds.

After Jupiter, we take up Saturn, circling the Sun next beyond. The second largest planet, Saturn is a beautiful object in the telescope, shrined as he is amid his zone of triple rings, probably composed of millions on millions of satellites and circled by no less than eight Moons. It would be against Nature to disallow his claim to help balance the solar system. When in aspect or position with the Sun, his waves of magnetic influence appear sufficient to accelerate cold rains, dark weather and heavy storms. The greatest rainfall ever recorded at the McGill Observatory, Montreal, in 28 hours, happened on October 20th and 21st, 1885, when Saturn was stationary among the stars and in Perihelion at the same time.

Some time ago, I completed for reading at a meeting of the Astro-Meteorological Association a tabular statement, a "Saturnian-Solar Record," as we call it. It consists of every conjunction, opposition, quadrature and other leading position of the planet Saturn as configured with the Sun since 1884. These amount to 20. I anticipated that we had cold weather here on such positions, but must own that I was astonished to find how great the fall had frequently been. 10°, 13°, 17° and even 18° of a drop in the temperature had occurred at Montreal on the day of the position or the day following. Surely here is something more than "coincidence" or blind chance. Enough, indeed, to set unprejudiced persons thinking whether there may not be something true in that crank Smith's weather theories after all. (Laughter.) The record is a thorough, not a partial one, be it remembered. I did not take just those positions that suited my theory and leave the two out that did not. With such a table we can confidently forecast a fall of temperature at Montreal, when Saturn and the Sun get in aspect in future, and be right, in all probability, 18 times out of 20, this, too, a year or more ahead, beating the average correctness of the Toronto or Washington offices, with all their costly appliances, their hundreds of observers, and their annual expenditures of millions of dollars.

Uranus, next beyond Saturn, appears to favor rapid changes, sudden storms and squalls, as well as generally blustry, cold weather.

Neptune, owing to his extreme distance, exerts much less influence, but what he does exert is apparently in favor of precipitation.

At this stage we find it necessary to consider the condition of the Sun. If free from spots—which are gigantic solar storms—we can pass him by, but if it be a year of sun spots, we can forecast auroral or magnetic storms as probable, as well as intensify the other forecasts of storms and so forth.

Commencing again in January, we consider all the planets in their mutual relations to each other, and, referring to our records apportion what is considered the proper weather to each position or aspect. Of course we have yet many matters of minor detail to determine, such as where a certain change is likely to begin; its probable severity, intensity and consequent duration in certain sections. If, in common with many of our great storms, it is likely to form over the Mid-Atlantic and Gulf of Mexico, to work gradually North-West over Texas, Kansas, Nebraska; become deflected by the Rockies and icy air of the Canadian North-West—I am speaking of the upper strata—and so, turning about, cross Dakota, Manitoba, Minnesota, the Lakes, the St. Lawrence Valley and New England, the natural weather for the 7 or 8 days has to be carefully mapped. When precipitation is going on over Texas, Louisiana and Kansas, there will be a flow of air from the North over Eastern Canada and New England, so we can forecast "rains in the South and South-West, fine weather East." When we calculate the storm shall have moved to its Northern limit, we write: "Mild weather East, rains probable; generally stormy, (and if Winter) snowy, high winds and drifts in the North-West; gales over the Lake region." A day or so later we write "very cold in the North-West, a 'dip,' with low thermometer readings, generally cold weather, with gales on Atlantic coast."

In order to make such a forecast we have also to know something of Meteorology, particularly the movements of North American storms; to know that our vapor laden

atmosphere must come from the Atlantic, and more especially the sub-tropical portions of that ocean; to know that precipitation, by taking moisture from the air, not only lowers the temperature, but causes a partial vacuum, which necessitates something taking its place. That something is usually the highly rarified, and very cold, dry air of the upper regions, which rushes down, not from the North Pole or Arctic Regions, as some think, but from the stratas above us. The great blow which follows a period of heavy rain or snow necessarily continues until the partial vacuum it leaves is filled. The air remains steady then, in its very cold condition until heated up again by the Sun and the introduction of vapor.

It is also good to keep comprehensive records. Blank books for weather clippings are a part of my library. These are tabulated by months, and kept for reference along with the reports from my weather observers. Temperature charts, showing the whole year at a glance, are also useful. So also, is the "Vennor System," which may be briefly summed up in the expression, "The weather repeats itself." Consequently by going back to a year when exactly similar conditions obtained, he would anticipate what was in store from what then followed.

What I have said, although only on the threshold of my subject, has doubtless been sufficient to show, that, in forecasting the weather, guess-work has to be laid aside for something much more systematic. (Applause.)

OUR SISTER PLANET.

BY A. J. PIGEON,

Member of the Astro-Meteorological Association.

Some evenings when the Sun has disappeared, a star of great brilliancy shines out from a few degrees above the horizon. It is the planet Venus, the most important of the inferior planets. The movements of Venus seem remarkable; after having followed its track from West to East for a time, it seems to hesitate, stop, retrace its steps, hesitate again, as though undecided which course to follow, and finally resume the track it had previously abandoned. After several times

hesitating and retracing its steps, it completes a revolution around the heavens in about fourteen months.

The Greek astronomers having made the Earth the centre of the Universe, could not understand the apparent whims of this star. It was reserved for Copernicus to give an explanation. He explained that the Sun is the centre of the planetary system and that Venus revolves in a smaller orbit than the Earth, which accounts for its odd behavior. Another peculiarity of Venus is its phases, seen for the first time by Galileo, September, 1610, she being then near "Inferior Conjunction;" that is between the Sun and Earth. Its distance at such times is about twenty millions of miles. Continuing its revolution, it arrives at its "Superior Conjunction" and its distance from us has increased to one hundred and fifty-seven millions of miles.

Venus has mountains supposed to be five times as high as the highest on Earth. It has a diurnal revolution of 23h. 21m., and, owing to its orbit being nearly circular, its seasons are nearly equal in length. Succession of day and night takes place on its surface as on our Earth, and it has an atmosphere displaying all the colors of light. The marked variations of its seasons are owing to a greater inclination of its axis than that of the Earth. When the Sun in Summer comes about 28° North of the Equator, or say to Cuba; on the planet Venus; comparatively speaking, it would reach to Labrador. The poles are alternately submitted four months to the heat of an almost vertical Sun, and the torrid and frigid zones continually encroach on each other, causing constant atmospheric disturbances. It is therefore difficult to observe its geographical conformation; veiled, as it always is, by a disturbed atmosphere, caused by the rapid variations of the altitude of the Sun, the length of its days and the floating clouds generated by a sun twice as strong as that on the Earth.

Discovering so many points of resemblance to our Earth, and knowing that Nature is uniform in her proceedings; the same causes producing the same effects; why should we not conclude that there is life on the planet Venus? Of what use such provisions to sustain life, if life be not there?

There are, doubtless, now on Venus, beautiful groves, prairies studded with flowers, immense forests filled with

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animals and where flocks of birds fill the air with their songs. There are brooks, lakes, deep and rapid rivers—rivers far larger than our majestic St. Lawrence and mighty Mississippi, which are fed from mountains covered with eternal snows, giving rise to glaciers, which are rapidly dissolved from below by the great heat of the Sun.

Venus, as we have seen, has most of the striking characteristics of the planet we inhabit. Of almost the same dimensions, same length of day, same atmosphere, same clouds and rains; even the years and seasons do not show any very marked difference, in fact Venus affords to the Earth greater resemblance than any other member of the Sun's family. But her close proximity to the Sun and her rapid meteorological changes render it more difficult for us to accurately chart her surface than that of our older, but much smaller brother, Mars.

EARTHQUAKES AT CHARLESTON.

BY REV. PETER C. LAWRENCE,
Member of the Astro-Meteorological Association.

The recent earthquakes seem first to have touched Summerville, S.C., about August 21, 1886, and to have reached Charleston six days after, early in the morning. Shocks were frequently and strongly felt at Summerville, but no one could account for the strange phenomenon till it developed itself here on the 31st of that month.

The day had been cloudless, and to common observation was as pleasant as could be for the season. It continued thus during the night when Charleston was shaken. Houses moved on the surface of the earth as if on the surface of water for the duration of thirty seconds. The strongest buildings were shattered, chimneys thrown down and buildings burned. The fires originated from the upsetting of lamps due to the motion of the houses. A little while after this quake, there was another one though somewhat less in strength and duration, but the rumbling sound as of subterranean thundering was now more audible. This was followed by tremors in the earth, which wore away gradually till the next day, when another shock came about noon, and the tremors were increased and kept on so for several days.

There were other strong quakes throughout the year. These have occurred so variously as sometimes to be days apart, and again to follow each other in quick succession. The last quake that I felt was on Easter Sunday, April 10th, at 6 a.m. It was a very quick motion, with an explosive sound. The last earthquake rumbling I heard was on August 10th, but I then felt no quake. Local records give three quakes for the end of August, 1887, and they have accordingly lasted over one year.

My impression is that earthquakes are the effect of cold and heat, and that they follow long and extended droughts, that they have an Astro-Meteorological feature also, as for instance, when they follow on a solar eclipse as here in August, 1886. There are, I conclude, in such cases, good grounds to account for the then bursting open of the earth all over this State, and the ejection of mud and water, and different colored sands of sulphurous odor with such force as to have dealt destruction to things near by.

BAROMETER AND THERMOMETER.

BY THOMAS BIRT,

Member of the Astro-Meteorological Association.

From early boyhood I have endeavored to accustom myself to the use of tools. I use both thermometers and barometers, and by their use try to place on paper the results of observations. In so doing, I find it necessary to understand the construction of these instruments.

The barometer was invented in 1643, the thermometer in 1590. In *Vennor's Weather Bulletin* for March, 1882, we find the following instructions in regard to handling a thermometer:—"Place the thermometer in the open air, so situated that it will always be in the shade, and yet have a free circulation of air around it." Correct every word. The next thing to do is to secure a good instrument. Then set to work systematically to learn its use, and have fixed hours to record its readings. The top of the mercury column should be placed as near on a line with the line of vision as possible. Learn to be quick at taking an observation and read to tenths of a degree. By a little practice this can soon be accomplished. By following these instructions and a little study, one may soon be enabled to read pretty nearly the condition of the atmosphere. That is for the dry bulb. Now for the wet one. On the same board, also exposed, is hung another thermometer. The mercurial columns should coincide. The bulb of one is then to be wetted with a camels' hair brush, and the rapid evaporation will cause the wetted bulb to rapidly lower the mercury in that tube. When it has reached its lowest point its record is to be taken. The dry bulb will record the highest, the wet one the lowest, and the difference will be the depression of the column caused by evaporation. By a system of tables the dew point and relative humidity of atmosphere can readily be known. These tables can be found in any good work on Meteorology.

There are other thermometers to which I would call your attention, viz.: "maximum" and "minimum"; one recording the highest, and the other the lowest in the 24 hours.

The "maximum" is usually a mercurial column, sometimes having a little float. Sometimes the tube has a slight stricture, just beyond the bulb, where the expansion of mercury in the bulb causes little globules of mercury, like slight pulsations, to move the column onwards until it has reached its highest point. The stricture prevents its returning. That must be accomplished by twirling the instrument on a brass pivot and so again uniting the column.

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The Hotel is managed by Mr. SAMUEL MONTGOMERY, under the personal supervision of the proprietor, Mr. HENRY HOGAN.

The "minimum" is usually an alcohol thermometer in which is a small float to serve as an index. The alcohol, by contraction, pushes the float with it, but on expansion it passes it, leaving it stationary, thus indicating the lowest temperature reached in the 24 hours. I always set my thermometers at 9 p.m. I consider both "maximum" and "minimum" to be of vital importance to meteorology, as well as indicating the mortality of man. For it is recorded that there are more deaths and more persons sick when these instruments have wide divergence.

Barometers are of various manufacture, and vary with the maker. The one having a mercurial column and cistern is, perhaps, the instrument in most general use. The bore should be uniform throughout, and the tube should be made from well seasoned glass, for glass, when first made, is liable to a system of shrinkage and twisting very much like unseasoned wood. The bore should not be less than one-quarter of an inch in diameter, and the mercury should be pure and boiled in the tube to expel air bubbles. A very good and serviceable instrument can be made at very little expense. Obtain a barometer tube with a slight elbow at bottom to serve as a cistern, fill it with pure mercury, place a cork at the short end, and your instrument is made. Fasten it securely to a board, with a slight chamber to receive the column and the cistern below. This cistern should be covered by a thin hinged cap. Take it to some friend having a standard and mark the height of the mercurial column, with similar markings as are on the standard. A neat dollar clock might be placed at the head of the column to give it a finish.

Of course, you can buy one if you prefer it. There are some splendid instruments manufactured, costing upwards of \$200, but, for all ordinary purposes, the one described would answer and would not cost more than five dollars, perhaps less, if you can fill the tube and fit it to the board. The barometers I use are aneroids, I prefer them to mercurial, as they are much more sensitive, but much more liable to get out of order.

Now, as regards the method of using a barometer. The instrument should be hung where it can be easily read in a room of as even temperature as possible. To it should be attached a thermometer, to enable you to ascertain the temperature of the column at the time you record its readings. My records are kept thus:—

Date.	Ther.	Bar.	Attached Ther.
26	80	29.56	74.10

These records should also be kept at fixed hours, 7 a. m. and 9 p. m. being very good hours for the purpose.

The barometer always falls suddenly before a storm, especially if strong wind accompanies it. A slowly falling column, especially after a heated term, indicates a long period of wet weather should the column remain stationary. A rapidly rising column, an unsettled state, especially if, after reaching its maximum, it afterwards commences falling.

These instruments I have tried to describe, meteorologists consider the main ones to a study of meteorology. With the records that can be made with them, with intelligent and judicious use, combined with observations of the winds, clouds, auroras, and other electrical phenomena, there must, in the very near future, be opened up to our race a thorough knowledge of the vast scheme of which meteorology is but a minor part.