

DR. RADWAY'S ALMANAC

FOR

1889.

CALCULATED for the Meridian of Washington, D. C., and answering approximately the Meridians of Montreal, Boston, New York, Charleston (S. C.), and New Orleans.

ECLIPSES IN 1889.

In the Year 1889 there will be five Eclipses, three of the Sun and two of the Moon.

A. A Total Eclipse of the Sun, January 1st, 1889.

POINT AUREA, CAL.				NEW ORLEANS, LA.			
Eclipse begins.....	12	5	12, eve.	Eclipse begins.....	3	25	41, eve.
Total phase begins.....	1	30	5, eve.	Maximum.....	4	30	42, eve.
Middle of totality.....	1	31	5, eve.	Ends.....	After sunset.		
Total phase ends.....	1	32	5, eve.	Greatest magnitude 6 digits.			
Eclipse ends.....	2	53	12, eve.				
Mt. HAMILTON, CAL. (Lick Observatory.)				CHICAGO, ILL.			
Eclipse begins.....	12	18	23, eve.	Eclipse begins.....	3	23	22, eve.
Maximum.....	1	44	26, eve.	Maximum.....	4	35	28, eve.
Eclipse ends.....	3	3	49, eve.	Ends.....	After sunset.		
Greatest magnitude 11 7-10 digits.				Greatest magnitude 9 digits.			
St. Louis, Mo.				CINCINNATI, O.			
Eclipse begins.....	3	21	28, eve.	Eclipse begins.....	3	25	58, eve.
Maximum.....	4	27	19, eve.	Maximum.....	4	32	32, eve.
Ends.....	After sunset.			Ends.....	After sunset.		
Greatest magnitude 6½ digits.				Greatest magnitude 8 digits.			
				At Washington, eclipse begins 21 m. before sunset.			
				At New York, " " 6 " " "			
				At Philadelphia, " " 6 " " "			
				No Eclipse at Boston.			

II. A partial Eclipse of the Moon, January 16, 1889, visible generally in America.

	Eastern.	Central.	Mountain.	Pacific.
Eclipse begins.....	10 59 P. M.	9 59 P. M.	8 59 P. M.	7 59 P. M.
Middle of Eclipse.....	12 30 P. M.	11 30 P. M.	10 30 P. M.	9 30 P. M.
Eclipse ends.....	2 1 A. M.	1 1 A. M.	12 1 P. M.	11 1 P. M.
Greatest magnitude 8 1/2 digits.				

III. An annular Eclipse of the Sun, January 23, 1889, visible only in the Southern Hemisphere.

IV. A partial Eclipse of the Moon, July 12, 1889, not visible in the United States, as it ends before the Moon rises.

V. A total Eclipse of the Sun, December 22, 1889, not visible in the United States.

CHURCH DAYS IN 1889.

Epiphany.....	January 6	Easter Sunday.....	April 23
Septuagesima Sunday.....	February 17	Low Sunday.....	April 23
Sexagesima Sunday.....	February 24	Rogation Sunday.....	May 26
Quinquagesima Sunday.....	March 3	Ascension Day.....	May 30
Ash Wednesday.....	March 6	Whit Sunday.....	June 3
Quadragesima Sunday.....	March 10	Trinity Sunday.....	June 14
Mid-Lent.....	March 31	Corpus Christi.....	June 23
Palm Sunday.....	April 14	Advent Sunday.....	December 3
Good Friday.....	April 19	Christmas Day.....	December 25

CYCLES OF TIME.

Golden Number.....	9	Dominical Letter.....	F
Epoet.....	28	Roman Indiction.....	2
Polar Cycle.....	23	Julian Period.....	6899

SEASONS FOR 1889.

WINTER begins 1888, December, 21 d. 4 h. 3 m. morn., and lasts 89 d. 0 h. 40 m.
 SPRING begins 1889, March, 20 d. 4 h. 51 m. morn., and lasts 92 d. 20 h. 19 m.
 SUMMER begins 1889, June 21 d. 1 h. 10 m. morn., and lasts 93 d. 14 h. 28 m.
 AUTUMN begins 1889, September, 22 d. 3 h. 38 m. eve., and lasts 89 d. 18 h. 14 m.
 WINTER begins 1889, December, 21 d. 9 h. 52 m. morn. Tropical Year 365 d. 5 h. 48 m.

PLANETS BRIGHTEST, 1889.

MERCURY January 30, after sunset; MARCH March 13, before sunrise; MAY May 24, after sunset; JULY July 12, before sunrise; SEPTEMBER September 20, after sunset; NOVEMBER November 31, before sunrise; JANUARY March 23, MARS not this year; JUPITER June 24, after sunset; SATURN February 5, after sunset; URANUS August 9, after sunset; NEPTUNE November 24, after sunset.

MORNING STARS.—MERCURY from February 14 to April 25, and from June 19 to August 7, and from October 15 to December 7. VENUS from April 26 to the end of the year.

EVENING STARS.—MERCURY from April 25 to June 11, and from August 7 to October 15, and from December 7 to the end of the year. VENUS until April 30.