

65°. 20th, wind northerly with an undercurrent from E. 23rd, thunder. 25th, wet bulb tried twice, with same result, viz: dry 68°, wet 68°. Fogs on 15th, 20th, 26th. Rain on 4th, 5th, 15th, 16th, 24th, 26th, 29th, 31st.

HAMILTON.—Tulip tree (*Liriodendron tulipifera*) in bloom. 5th, lightning and thunder. 12th, pumpkins in bloom. 15th, lightning, thunder and rain. 16th, Indian corn in tassel. 18th, fall wheat harvested. 22nd, thunder. 29th, auroral light 15° along horizon 7° or 8° high. Storms of wind on 3rd, 5th, 6th, 10th, 11th, 13th, 19th, 22nd, 24th, 25th, 27th, 29th, 31st. Rain on 5th, 8th, 9th, 11th, 15th, 25th, 28th. Month very dry, amount of rain 3.4089 inches less than in July 1866, and duration of rain 38h. 7min. less.

PEMBROKE.—Storms of wind on 4th, 5th, 6th, 8th, 12th, 16th, 17th, 18th, 27th, 29th, 30th. Rain on 4th, 11th, 23rd. Vegetation has suffered for want of rain, but crop fair. English grain light, and below average yield.

PETERBOROUGH.—On 4th and 11th, lightning, thunder and rain. 15th, thunder and rain. 21st, (Sunday), a violent thunder storm in the evening with forked lightning, burst suddenly at 4.55 p.m., wind in heavy sweeping gusts from NNW, force 8; storm quite over at 5.50 p.m.; a great many barns and out-buildings in the country unroofed, and a few reported blown down. 29th, arch of auroral light across NH, bright, with a few faint streamers, at 10 p.m.; three falling stars observed. Rain on 4th, 6th, 7th, 9th, 11th, 15th, 21st, 22nd, 25th, 28th.

SIMCOE.—On 10th, halo round sun at 1.30 p.m. Lightning, thunder and rain on 1st, 5th, 11th, 15th, 22nd. Rain also on 4th, 8th, 25th.

STRATFORD.—On 3rd, lightning. 4th, thunder and rain. 8th, lightning and thunder. 11th, thunder at day light. 13th, hoar-frost on sidewalks. 15th, thunder and rain. 28th, lightning, thunder and rain, and storm of wind. Fogs 5th, and 23rd. Rain on 4th, 6th, 8th, 9th, 10th, 15th, 24th, 26th, 28th, 31st.

WINDSOR.—On 4th, heavy rain for one hour with lightning and thunder. 10th, lightning; storm of wind. 11th, thunder. 22nd, 24th, 25th, 31st, lightning, thunder and rain. Rain also on 15th (slight), and 23rd.

St. JOHN, NEW BRUNSWICK.—N. Lat., 45.°17'. W. Long., 66.°4'. Height above sea, 135 feet. We extract the following from a report sent by an observer at this point:—For the month of July, the corrected mean readings of *Barometer*, were, at 8 a.m., 29.930, at 2 p.m., 29.877, at 10 p.m., 29.922, means, 29.910. Highest, 30.292 on 31st; lowest, 29.916. Range, .676. *Temperature*: mean at 6 a.m., 56.050, 10 a.m., 63.023, 2 p.m., 66.035, 6 p.m., 63.070, 10 p.m., 58.007. Highest, 78° on 1st; lowest, 54° on 14th. Range, 24°. Greatest daily range, 22°. Warmest day, 1st, mean 66.°3; coldest, 20th, mean, 56°. *Tension of vapour*, mean, at 8 a.m., .430, 2 p.m., .454, 10 p.m., .525, mean, .486. *Humidity*, mean at 8 a.m., 83, 2 p.m., 73, 10 p.m., 87, mean, 81. *Wind*, southerly 19 days, SW being prevalent. *Rain* 9 days and 10 nights, total fall, 3.105 inches.

III. Paper on Astronomy.

1. THE EARTH'S YEAR.

In the July number of the *Teacher* something was said of the *Day* as a standard measure of time. In this article we propose to speak of the *Year*.

The revolution of the earth about the sun, or the time occupied by the earth in passing from the equinox around to the same equinox again, is called a *year*. It embraces the interval of the seasons in regular succession. Its length is 365 days 5 hours 48 minutes and 48 seconds—a certain number of *whole* days and a *fraction* of a day. Now, as the *times* of revolution of the earth on its axis and around the sun are *incommensurable*, and the year, for convenience, must contain a certain number of *whole* days, it has been a difficult problem to *intercalate* at proper intervals a sufficient number of days to keep the same seasons to the same months. The reckoning must be such as to bring midsummer about the 20th of June. If the year is too long, or too short, cold winter will reign in the summer months, and summer in the winter months.

Some of the ancients made the year to consist of 12 synodic revolutions of the moon, or 354 days. To make the proper corrections, a month every three years was added at first; afterward, three months every eighth year; and finally, eight months every nineteen years. This mode of reckoning prevailed among the Jews and Romans. The Egyptians made their year to consist of 365 days. It was divided into 12 months, of 30 days each, at the end of which 5 days more were added. The Romans, at first, adopted the lunar year, as it was fixed by Romulus, who decreed that it should consist of 10 months, or lunations—March being the first and December the tenth. According to this reckoning, the *Romulan* year fell short of the *solar* year 61 days. The High Priest was accustomed to publish tables informing people when the seasons should begin. After a time, through ignorance or neglect, the *intercalary* days were some times introduced and some times omitted; and the year became quite unsettled.

Numa introduced among the Romans the Luni-solar year, adding

to the lunar year, of 354 days, an *intercalary* month, of 22 days, every two years.

Julius Caesar, by the assistance of Sosigenes, an astronomer of the Alexandrian school, may be said to be the first who, in any respect, was successful in the reformation of the Calendar. His year consists of 365 days and 6 hours. This is called the Julian Year. He decreed that every three years should consist of 365 days each, and the fourth year of 366 days. The latter was called *Bissextile*, or Leap-year, from the circumstance that the sixth of the calends of March, or the 24th of February, was reckoned twice.

The Julian year was found to be 10 minutes and 12 seconds too long. In process of time this error would reach a *maximum*, and thus the seasons and their corresponding months would be in direct opposition.

Pope Gregory XIII, in 1582, set himself about the correction of the Julian Calendar. Reckoning from the Council of Nice, which was held in the year 325, the error amounted to 10 days. At that time the vernal equinox occurred on the 21st of March; in Pope Gregory's time it occurred on the 11th of March. At the Nicene Council the time for *Easter* was fixed to occur on the first Sunday after the full moon which happened upon or next after the 21st of March; and if the full moon happened on Sunday, Easter would occur on the Sunday following. Hence we see that the time of the festivals of the Catholic Church was constantly changing. After many years, Easter would be changed from the pleasant and delightful season of Spring to cold and dreary Winter. To remedy this, Pope Gregory decreed that the 5th of October should be called the 15th, thereby bringing the vernal equinox back again to the 21st of March. To diminish the error of reckoning, he decreed further that every year, except the centennial years, divisible by 4 shall consist of 366 days; the others, of 365 days; the centennial years divisible by 400 shall consist of 366 days; the other centennial year, of 365 days. This is called the *Gregorian Calendar*. The error is less than a day for 4,000 years.

Catholic countries made use of the Gregorian Calendar as soon as the reform was instituted. It was not adopted, however, in England until the year 1742, when the error amounted to 11 days. It was then ordered that the day following the 2nd of September should be called the 14th.—*Illinois Teacher*.

IV. Biographical Sketches.

No. 23.—THE EX-KING OF THE GREEKS.

Otho, ex-King of Greece, and brother to Maximilian II, King of Bavaria, was born at Salzburg on the 1st of June, 1815, and has consequently died in his 53rd year. He was elected to the throne of the newly constituted kingdom of Greece at the age of 17, in virtue of the authority given by that nation to France, Great Britain and Russia. The convention between the three courts and the King of Bavaria, acting for his son, stipulated that Greece should form an independent state, and that the Powers, by negotiating with the Porte, should fix the limits of the kingdom then imperfectly defined; and that the majority of the young king, then a minor, should be fixed at the 1st of June. The Greek National Assembly acknowledged its king, and the young monarch landed in his new dominions with his German soldiers on the 6th of February, 1833. Brigandage, taking the form of petty civil war, and the perpetual antagonism of parties, coupled with the King's own incompetency, frequently held in check whatever progress might have been otherwise possible. The history of Greece from that day to 1863 presents us with little more than a record of the violence of factions and political intrigues. In 1836 he contracted a marriage with the Princess Mary Frederica Amelia, daughter of the Grand Duke of Oldenburg, who virtually exercised the regal power, owing to her husband's constitutional indolence. In 1863, however, misgovernment had compelled a revolution; Otho fled, and George of Denmark undertook the government of the kingdom at the request of those whom he has to govern. The ex-King's death arose from a severe attack of measles.—*Sunday Gazette*.

No. 24.—ARCHBISHOP TURGEON.

The late Archbishop of Quebec, Pierre Flavien Turgeon, was born at Quebec, 12th November, 1787; his father, Louis Turgeon, being a respectable merchant of that city. In 1800, he became a scholar of the Petit Seminaire of Quebec; and his whole course at school was marked by diligence, ability, and propriety. He attracted the attention of Bishop Plessis, who employed him as a secretary, and trained him to all the details of episcopal duty, in the hope of leaving his throne at his death to M. Turgeon. But it was not till twenty-five years after Archbishop Plessis' death that M. Turgeon