

Fogs 23rd, 24th, 25th. Rain, 3rd, 5th, 7th, 15th, 17th, 19th, 22nd, 27th. Excess of mean monthly temperature over average of 13 years + 4°.71.

HAMILTON.—Lightning and thunder with rain, 17th, 28th. Rain, 3rd, 5th, 15th, 17th, 28th.

SIMCOE.—Lightning and thunder with rain, 5th, 15th. Frost, 20th, 21st, 30th. Wind storms, 19th, 30th. Fogs, 9th, 10th, 11th, 21st, 26th. Rain, 3rd, 4th, 5th, 15th—17th, 22nd, 27th, 28th. Brilliant Aurora, class I, covering the whole N. Hemisphere, 26th. Last three days unusually cold.

WINDSOR. Thunder with rain, 19th. Lightning and thunder with rain, 8th. Meteors on 2nd, N. E. towards H.; 5th, through *Scorpio* towards H. 6th, through *Arcturus* towards H.; through Northern Crown towards S.; from *Cassiopea* towards S. 25th, Lunar halo.

IV. Papers on Scientific Subjects.

1. WHEN AND WHERE DOES THE DAY BEGIN ?

The *Scientific American* thus answers the question : "As we travel eastward, the day begins earlier ; near the Equator starlight appears an hour earlier for each thousand miles going east. When it is sunrise in New York, the people of Europe have had sun-light for many hours, and the Californians are still in their beds dreaming. Evidently the day has a first beginning, and at the eastward. But how far and where ? What are the people who first see the light of Monday morning ?

"It is the sun which brings the day ; where does he first bring Monday ? If we could travel with him, we might find out. Let us suppose the case. We will take an early start ; at sunrise on Sunday morning, with the sun just at the point of peeping over horizon behind us ; we travel westward. As we go, the people give us a Sunday greeting ; we bring Sunday with us to Pittsburg, St. Louis, Salt Lake, San Francisco. At San Francisco our faithful chronometer informs us that we have been on the tramp about five hours. But we started on Sunday morning, and it is Sunday morning still. We go on, still on Sunday morning. Will this Sunday morning never end ? The quiet Pacific knows but little of Sunday, or any other day, and our question scarcely receives an echo for reply. When we get to Yokohama in Japan, or Shanghai in China, we search for some Yankee, wide awake in the early morning, and we are told for the first time that Monday has come. Everywhere now we bring Monday, and in twenty-four hours by the chronometer, after starting, we are in New York again, and find the merchants taking down their shutters, and the Monday newspapers telling us what has happened during our absence."

2. THE FIRST TRANSATLANTIC STEAMER.

There is a statement on record to the effect that the first steamship that crossed the Atlantic, from Europe to America, was in 1819. (Previous to this time they had been quite extensively employed in the home trade of Great Britain, and were already assuming large proportions and great power.) This announcement, if substantially correct, would be fatal to Canadian glory, but it admits of some explanatory remarks which modify its force and give us the honour claimed. By reference to nautical regulations then enforced, we find that though nominally steamships, such vessels, when crossing the ocean, made their way almost entirely by means of sails, the engine only being used when head winds prevailed, and even then at a low rate of speed. This manner of navigating the great distance prevailed for a number of years. In 1833, the "Royal William," of 180 horse power, and 1,000 tons burden, was built at Three Rivers, on the lower St. Lawrence, and was intended to sail between a Nova Scotian port and Cowes, Isle of Wight. We have the best of authority for asserting that *she was the first steamship to make the entire voyage across the Atlantic under steam.* From that year may be noted the inauguration of a new era in trans-oceanic communication ; a more powerful and faster class of boats was introduced, the use of steam being entirely relied upon for motive power, and sails only employed as aids at certain times. Thus it would appear that a Canadian built ship, manned by Canadian seamen (presumably so), and sailing from a Canadian port, was the first to demonstrate the superiority of steam over wind and wave in connection with the navigation of the boisterous Atlantic.—*From New Dominion Monthly for March.*

3. UNKNOWN PLACES.

Chief Justice Daly, in his annual address before the American Geographical Society, in referring to the work yet to be done by geographical societies, says : "There are not now great highways along the ocean to be tracked, or great continents to be discovered,

but there is yet one-seventeenth part of the globe, of which we know nothing except by conjecture. The region which surrounds the South Pole, the Antarctic, covers an area of 7,000,000 square miles. The Arctic measures nearly 3,000,000. The unexplored portion of Africa may be put down at least as 1,000,000. The unknown part of Australia is certainly more than two-thirds of that amount, and in this connection I may draw attention to the great Islands of the East Indian Archipelago, stretching from the north-east corner of Asia to New Zealand, occupying the most favoured part of the earth, and which have in extent the magnitude of a continent. One of this great group, Borneo, is considered the second largest island on the globe. A strip along the coast of about 100 miles deep, represents what we know of it ; the interior and the larger portion remains unknown. Papua or New Guinea is as large or may even be larger than Borneo. What do we know of it ? Comparatively nothing. Sumatra is 1,000 miles in length, and Celebes and Lozon are inferior only to Sumatra, and there are in addition numerous islands of considerable size, some as large as Ceylon, and thousands of minute islands, many abounding in spices and mineral ores. It was with the view of drawing public attention to the importance of obtaining more exact geographical knowledge of the planet we inhabit, that the first geographical society was formed in Great Britain 43 years ago, and that the stimulus which such a body can give to such an enquiry is very great, and the results it can produce extensive, is seen in the fact that there are now 33 of these societies distributed over the globe, in England, France, Holland, Belgium, Italy, Spain, Germany, Hungary, Russia, India, the United States, Mexico, Brazil, and Buenos Ayres. It is only very large societies—like the Royal Geographical Society in London, which has now 2,700 members, paying £2 each annually, and has in addition a permanent fund of over \$100,000 and a stipend from Government, making its annual income over \$30,000, or the Imperial Russian Geographical Society, which is munificently supported by the Government—that can engage in and defray the expense of explorations in the unknown parts of the earth."

4. LAKE SUPERIOR.

It is something to remember for a lifetime, is a trip to the shores of this most vast and most interesting of all our inland seas. The cool temperature, fully ten degrees below that of Lake Ontario, and the thickly wooded hilly shores, rising occasionally into mountains, the pointed rocks of the South border, the vast rocky promontory of Cape Thunder, with its neighbouring rocky islands and rising settlement at the beginning of the Dawson Road, the singular rocky island under the lee of the Cape which has proved a mass of silver ore, the vast and wonderful expanse of Nepigon Bay, studded with rocky and timber-crowned islands, a very dream of romance and beauty, the wild solitude of the Nepigon River, the beautiful Michipicoton Island, rising, with its woods and groves, some 800 feet out of the Lake,—all these combine to make the trip to Lake Superior quite unique and unparalleled. Day after day the steamer winds her way amongst the mazes of the islands of the Georgian Bay (of which 30,000 have been counted), and under the shadow of the mighty rocks of Lake Superior, the voyage having all the incidents of ocean travel without its excessive monotony, and, generally, without its accompanying sickness. Every hour brings change of scene. The bracing air inspires the appetite. Fish are caught on the way in abundance. Here and there passengers can land in some romantic out-of-the-world kind of spot, and wander about, picking up strange mosses, pebbles, agates, and what not ; or, if it pleases them better, they can fish. The social intercourse takes place that always arises on an ocean voyage. Intimacies arise, and friendships are formed. Evenings are spent in music and social enjoyments, and when the long and varied voyage is brought to an end, and the little world of the steamboat has to be broken up, there are few but must regret that all is over, and wish for a renewal of such pleasant scenes.—*From the New Dominion Monthly for August.*

A Russian admiral has built a vessel in the shape of a tin pail, 99 feet in diameter. She is represented as being a fair sailer, and takes rough weather comfortably.

A beautiful experiment by Rother shows that albumen in the presence of starch is not coagulated, even at a boiling temperature. It makes a fine class illustration of catalysis. Mix 50 grains of pure starch, with one fluid ounce of water. Dilute the albumen of one egg to make three fluid ounces and strain through muslin. Mix the two solutions and boil. There will be no coagulation or precipitate. Filter. Add a drop of nitric acid to the clear liquid, and instantly a dense white coagulation will be formed.