

fixed number of stations, at hours simultaneous with the other meteorological observations.

Taking it, at all events, for granted that such will be the case, I proceed, as an indispensable preliminary step, to take a disursive view of the yet debatable state of the question, as brought home to my mind by a comparison of the casual observations made by myself on Lake Erie, compared with the recorded opinions expressed by others, possessing either greater ability, or more leisure and better opportunities, for prosecuting such an enquiry,—as far as the very miscellaneous and disjointed memoranda accumulated by me will enable me to do so.

In accordance with this intention I may, in the first place, remark, that though the phenomena connected with the various periodical fluctuations in the level of the Lakes appear to have attracted the notice of philosophic travellers near two centuries ago, they remained altogether uninvestigated till very lately. The minor tides or oscillations were first alluded to by Fr. Marquette, the Jesuit, in 1673, and more particularly by the Baron La Hontan in 1689: and they were afterwards further noticed by Charlevoix in 1721, and also by the British travellers, Mr. Carver in 1766, and Mr. Weld in 1796; but it was not till twenty years afterwards that the whole subject began to engage the particular attention of men of science in America, and especially of the talented individuals engaged in the Geological Surveys of the States of New York, Ohio, and Michigan—among whom I find them successively noticed by Colonel Whiting in 1819 and 1820, Mr. Schoolcraft in 1820, General Dearborn in 1826, and Governor Cass in 1828; and more particularly by Professors Hall and Mather, Colonel Whittlesey, Dr. Houghton, Mr. Higgins, and others, in their valuable official reports, from 1838 to 1842; as well as by various observant British officers and travellers, such as Captains Bayfield and Bonnycastle, and Messrs McTaggart, Macgregor, and others, the purport of all of whose observations will be found more or less glanced at in the sequel:—and yet, strange to say, these singular phenomena still remain involved in mystery!

It so happens that the observations of all the early writers on this interesting subject were confined to Lakes Superior, Michigan, and Erie, and were directed more to the daily fluctuations or tides remarked at particular places, than to the actual existence of the traditional great septennial rise and fall of the waters of the whole Lakes. Thus, for instance, Baron La Hontan, on reaching Green Bay, at the northern extremity of Lake Michigan, at its conjunction with Lake Huron, remarks that where the Fox river is discharged into that Bay, he observed the waters of the Lake swell three feet high in the course of twenty-four hours, and decrease as much in the same length of time. And he also noticed a contrariety and conflict of currents in the narrow strait which connects Lakes Huron and Michigan, which were so strong that they sometimes sucked in the fishing nets, although two or three leagues off. In some seasons it also happens that the current runs three days eastwards, two days westwards, and one day to the south, and four to the northwards, sometimes more and sometimes less.

Charlevoix also noticed similar appearances; and supposes Lakes Huron and Michigan to be alternately discharging into each other through the Straits of Michillimackinac; and mentions the fact that in passing that Strait his canoe was carried by the current against a head wind.

But it was not till 50 years afterwards that we were indebted to that intelligent British traveller, Mr. Carver, for any great additional

light on this mysterious subject, as well as for other particulars regarding the then unknown region of Lake Superior, from information acquired on the spot. But as his remarks are alluded to by a subsequent equally respectable and observant English writer, Mr. Weld, who visited Canada in 1796, we are content to refer to the interesting volume of the latter for the following (much condensed) appropriate observations.\*

“It is confidently asserted, not only by the Indians, but also by great numbers of the white people who live on the shores of Lake Ontario, that the waters of this Lake rise and fall alternately every seventh year. Others, on the contrary, deny that such a fluctuation does take place; and, indeed, it differs so materially from any that have been observed in large bodies of water in other parts of the globe, that I am tempted to believe it is merely an imaginary change. Nevertheless, when it is considered, that, according to the belief of the oldest inhabitants of the country, such a periodical ebbing and flowing takes place, and that it has never been clearly proved to the contrary, we are bound to suspend our opinions on the subject. For instance: a gentleman who resides close upon the borders of the Lake, not far from Kingston, and had leisure to attend to such subjects, told me that he had observed the state of the Lake for nearly fourteen years, and that he was of opinion that the waters did not ebb and flow periodically; yet he acknowledged the very remarkable fact that several of the oldest white inhabitants in his neighbourhood declared, previous to the late rising of the Lake, that the year 1795 would be the high year; and that in the summer of that year the Lake actually did rise to a very uncommon height. He said, however, that he had reason to think that the rise on this occasion was wholly owing to fortuitous circumstances, and not to any regular established law of nature; and that its being greater than usual was more imaginary than real; and he formed this opinion from the circumstance that when the Lake had risen to its unusual height in 1795, he had questioned some of the oldest people as to the comparative height of the water on this and former occasions, when they affirmed that they had seen them equally high before.” Now, a grove of trees which immediately adjoined this gentleman’s garden, of at least thirty years’ growth, was entirely destroyed this year by the waters that flowed amongst them; and if, therefore, the Lake had ever risen so high before, this grove would have been then destroyed; a circumstance militating strongly against the evidence as to the height of the waters, but which only proved that they had risen on this occasion higher than they had done for thirty years’ preceding, and *not* that they had not during that term risen *periodically* above their usual level.\*

\* I take the opportunity of here remarking that I might easily have imparted a seeming greater degree of originality to this paper by continuing to make only occasional reference to parts of information derived from different writers, and connecting them with a few second-hand observations in my own language; but feeling myself already dissatisfied on that head, and being desirous of exhibiting the whole evidence on the question, independent of any opinion of my own, I have adopted a more equitable course, in, as much as possible, allowing my authorities to speak for themselves, in their own language. I may at the same time add, that, in perusing the following and other hurriedly copied extracts and memoranda, accumulated at uncertain intervals during a course of more than fifteen years, and frequently at times when opportunities of access to books were “like angels’ visits, few and far between,” it must be borne in mind that they were made without any view to publication, and simply for the purpose of furnishing the means of here-after comparing the observations of different writers on an important philosophical question, in which I had long taken a deep interest; and that they will, therefore, perhaps often be found neither altogether verbatim nor regularly connected, and perhaps even betraying not