voice in the matter of the local nomenclature? Suppose that they, for the sake of euphony, should say that 'Worcester' (Mass.) should be pronounced 'Wor-ces-ter,' or 'Tehuacana' (Tex.) 'Tee-hu-a-can-a,' or 'San José' (Cal.) 'Saint Jo,' etc.: they would be termed ridiculous. If Anglo-Americans should agree to abandon the original pronunciation of all the French and Spanish spelled geographic terms of the South-west, I would agree with Mr. Dorsey, "that, when the regular Indian pronunciation cannot be maintained, let us use one that is euphonic English;" but as long as we pronounce the final syllable of the following partial list of French-American denominatives 'a' or 'aw,' all of which had the same origin and belong to the same category as 'Arkansas,' I shall oppose the singling-out of the latter word for euphonic experimentation: Attakapas, Tensas, Arkansas, Opelousas, Quapaw[1] (Kapas), Chickasaw[1] (Chickachas, Tchicachas).

Now, let us drop the word 'Arkansas' for the present, and take a look into the pronunciation of the geographic nomenclature of the western United States, which had its origin in the romance-speaking people, and its modifications by the Anglo-Saxon migrants, and lexicographers. Mr. Swinburne has given some fine illustrations of this in his able article 'The Bucolic Dialect of the Plains,' in a recent number of *Scribner's Magazine;* but there some general laws can be drawn from my observations in the Upper and Lower Mississippi valley, which I think are worthy of consideration. They are as follows: —

(1) In the north-west, the Latin-American geographic names, or Indian names spelled in the Latin languages, are generally spelled correctly by Anglo-Americans, but often mispronounced. Examples: 'Terre Haute,' 'Detroit,' 'Versailles,' 'Kansas,' 'Vincennes,' etc.

(2) Latin-American names of the south-west, or Indian names spelled in Latin languages, are often wrongly spelled by Anglo-Americans, but usually pronounced with approximate correctness. Examples: 'Bosque' ('Basque'), 'Turn Wall' (rare) ('Terre Noir'), 'Low Freight' ('L'Eau Frais'), 'Boggy' ('Bogie,' proper name), 'Tensaw' ('Tensas'), 'Prairie Dan' ('Prairie d'Ane'), 'Arkansaw,' 'Waco' ('Hueco'), etc.

It seems indeed paradoxical that the best educated and most literate population should have been least correct in the pronunciation; but when it is remembered that the Southern migrants procured their pronunciation by direct contact with the French and Spanish speaking people, and that the Websterian pronunciation was invented far from the scene, and in a day when modern languages received little attention, and the monopolizing classics pronounced even the mother Latin in the euphonious *veni, vidi, vici,* method, it was nothing but natural, that, "while Noah Webster in Connecticut was proposing single-handed to work over the English tongue so as to render it suitable to the wants of a self-complacent young nation," he should have fallen into the error of writing in the former editions of his valuable dictionary, "Arkansas, formerly pronounced and sometimes written 'Arkansaw.'"

It is gratifying to note, that, with the increased facilities for travel of late years, these erroneous arbitrary pronunciations are wearing away, and that Webster's latest edition gives the pronunciation 'Ar-kân-sa.'

ROB'T T. HILL.

U.S. Geol. Surv., Jan. 17.

The Iroquois Beach.—A Chapter in the History of Lake Ontario.

I SEND you the following abstract of a paper read by me before the Washington Philosophical Society, Jan. 7, 1888.

Of the high-level beaches about Lake Ontario, the most important is that to which the writer has given the name 'Iroquois,' after the Indian confederation who used portions of it as a trail. Fragments of this beach have long been known, but these were first correlated in New York by Mr. G. K. Gilbert, who discovered that the variations in its height were due to the differential elevation of the earth's crust. These investigations have been carried around the Canadian side of the lake by the writer, whose studies upon the origin of the Great Lakes date back for a decade. He has also followed the beach beyond the observations of Mr. Gilbert, in north-eastern New York, across the axis of maximum northern uplift, among the Laurentian ridges. In the old sea-cliffs in the region of Black River the author has found evidence of still older and greater differential elevation. At the head of the lake the height of the beach is 363 feet, south-east of the lake 441 (Gilbert), north-east, near Watertown, about 700, and at Trenton, Ont., 657 (barometric) feet, above the sea, in place of 247 feet, — the elevation of the modern lake. It is usually located within a few miles of the modern shore. At the south-eastern margin this beach sweeps around and includes Oneida Lake. North and east of Belleville, the lake, at this epoch, covered a large region, stretching to the Ottawa and down the St. Lawrence River. The maximum depth of the lake was 1,000 feet, in place of 738 feet, as at present; and of the outlet, 800, in place of a maximum of 240. The characters of the beach are described. Upon the northern side it rests upon drift-hills, but these are often replaced by more or less rocky shores upon the southern side. From Hamilton to Rochester, the eastward equivalent of the upward warping is three-fourths of a foot per mile, thence to Oneida Lake only one-fifth of a foot, and beyond a downward movement is indicated. At the eastern end of the lake the uplift increases from three feet to about five feet per mile, in proceeding northward. About the western end of the lake the northern equivalent of differential elevation ranges from 1.4 feet to three or four feet about Georgian Bay. The foci of elevation are south-east of James (Hudson) Bay. During the Iroquois epoch the lake was less than 140 feet above tide, and may have been at sea-level. In either case the outlet of the lake would have been 800 feet deep in places. There was no rock nor dirt barrier. Until further investigation shows the necessity, no other barrier will be assumed. In the Iroquois beach, remains of mammoths, elk, and beaver have been found, but no shells are known. There are lower beaches which are less perfectly developed, yet these show a decline of the warping forces. The Iroquois beach is coincident with the level of the Mohawk valley. Ontario was united with the other Great Lakes at a common level (the altitude being much lower than at the present day). This common lake (until the separation of Ontario) is here named Lake Warren, in honor of Gen. G. K. Warren, whom the writer regards as the father of lacustrine geology in America. Lake Warren is posterior to the last great ice epoch, and Ontario somewhat younger. Although the Ontario basin was somewhat warped before the Iroquois epoch, yet, so far, there is no evidence that the smaller basin formed an earlier separate lake.

In the study of the lakes the two great questions are, the origin of the valleys, and the cause of their closing into water-basins. As the valleys were shown long ago by the author to be preglacial, the second question is now being solved by the labors of Mr. Gilbert and the writer. Much unpublished information has been collected, and very much more is needed. There is now a dawn of light upon the theory and origin of the Great Lakes of North America.

J. W. SPENCER.

[1] The old French methods of spelling these words are given in parentheses. They are instances of words wherein the orthography has been sacrificed, and the pronunciation approximately maintained.

Weather-Predictions.

IN addition to Mr. Clayton's letter on this subject in *Science* for Jan. 13, I would state that I have never objected to a fair interpretation of 'my rules' so called, which, however, were an amplification of his own. Long before the predictions closed, I wrote him, suggesting that when one predicted 'rain,' the other 'threatening,' and the weather was actually 'fair,' the prediction nearer the truth should have the more weight. It is easy to see that the intent of any rules could only be a fair comparison between predictions. As I have already stated (*Science*, Dec. 30, p. 323), in two cases Mr. Clayton came nearer the actual weather, and in eight mine were the nearer. It was only after Mr. Clayton refused this proposition and any reference to a third person that I referred the matter to an impartial judge.

I am very glad indeed to find Mr. Clayton insisting, that, when predictions are made according to a certain rule, they should be verified thereby. In the case before us I have gone over all of Mr. Clayton's predictions in the *Boston Transcript*, and find, that, if he had modified them otherwise, they would have received the same verification by Upton's scheme as by mine, or, under the most lib-