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-

eral interpretation, the difference would have been only two or three per cent.

I am very glad to know that Mr. Clayton verifies his predictions of three elements by only two of them, and this gives us an interesting verification of the predictions given in my first letter. If we count 'rain' = .01 of an inch or more, and apply this to Mr. Clayton's predictions, (1), we shall find that they verify 80 per cent; applying to mine, (2), 96 per cent. But Mr. Clayton's predictions were not made to be verified by this rule, so we must fall back on his official figures, which are 85 per cent.

If any thing has been brought out most clearly by this discussion, it is the absolute need of a thorough examination of the method of prediction in each case; and if a comparison is to be instituted, it should only be after a careful formulation of a method which shall give a fair test of the nearness of the prediction to the actual weather experienced, taking into account as far as possible the language used in each prediction. I know it to be a fact that a person may give the same prediction for a place in two different terms, and a seeming application of the same rules to both will give a difference of more than 35 per cent in the two verifications.

H. A. HAZEN.

Washington, D.C., Jan. 20.

Children's Development.

APROPOS of the letter of 'G.' on children's development, in *Science* of Jan. 13, I was led to make the following contribution. When my little daughter was eighteen months old, I wrote down her vocabulary, as far as was possible, a number of days being spent in the process, so that it may be assumed that it is nearly complete. The total number of words is four hundred and sixty-nine, divided as follows: —

Common nouns	227	48.5%
Proper nouns (mostly names of persons)	31	6.6%
Adjectives (including pronouns and articles)	61	13.0%
Verbs	109	23.2%
Adverbs	22	4.7%
Prepositions	9	1.9%
Interjections	8	1.7%
Conjunctions	2	0.4%
	469	100

These were all words used by the child spontaneously, and in approximately their correct signification. Only one part of a verb is counted, unless the verbal stems of the different parts are distinct; plurals are not separately counted; and words used both as nouns and verbs are counted only once. The percentages are not materially different from those in the case cited by 'G.,' but further contributions on this point seem desirable. J. L. H.

Louisville, Ky., Jan. 18.

Sections of Fossils.

MR. FOERSTE, in No. 258 of *Science*, quotes from letters from Professor Prestwich and Dr. Geikie in regard to sections of *Bryozoa*. In referring to these authors in No. 250 of *Science*, I did so simply to call attention to what they say in regard to rock-sections in general, not *Bryozoa* in particular. It is not worth while to say more upon this point. In regard to my reference to Dr. Nicholson's work, I never inferred "that Professor Nicholson does not believe in the use of these microscopic sections," but that he stated in numerous places in both his volumes on fossil corals that in many cases it is not possible to separate species on internal structure, so recourse is had to external features; and from this fact I contend that the internal structure of these organisms is not sufficient to separate species. The old school, if it may be so called, as opposed to the new, believe that internal characters are often misleading, and that external features may more safely be followed. JOSEPH F. JAMES.

Miami University, Oxford, O., Jan. 16.

The Influence of Forests upon Rainfall and Climate.

IN closing his valuable and interesting article in your paper of Jan. 6, entitled 'Do Forests influence Rainfall?' Mr. Henry Gannett says, "With these results in view, it seems idle to discuss further the influence of forests upon rainfall from the economic point of view, as it is evidently too slight to be of the least practical importance."

Aside from the beneficial influence of forests in the retention and saving of the water which falls, may it not be that there is an effect of the forest upon climatic extremes of heat and cold? This is well shown, I think, by the experience of western Michigan. During the early years of the settlement of the country, before the forests were destroyed, all the delicate fruits of temperate climates were successfully grown.

Since the forests are nearly gone, the tender varieties of peaches can no longer be raised, except in a few favored localities, on account of extreme winter cold; and the heat of our summers has been of late years as extreme as the cold of our winters.

H. D. POST.

Holland, Mich., Jan. 9.

Is there a Venomous Lizard?

IN connection with the inquiry in *Science* of Jan. 13, as to the existence of a poisonous lizard (*Heloderma*), my own observations would corroborate the negative answer of your correspondent. I have had in my laboratory for five years a living specimen of the Gila monster (*Heloderma suspectum*), and during a portion of this time two specimens, both in healthy vigorous condition. In November, 1883, I presented a communication to the Kansas Academy of Science, maintaining that this species is not venomous. I have repeatedly placed young kittens in the same cage with these reptiles, and have allowed them to remain together for a week at a time. During these times the kittens were frequently bitten ferociously by the lizards, but with no worse result than the temporary swelling of the part bitten from the mechanical effect of the powerful pressure. This was at first surprising to me, as intelligent miners in New Mexico had often informed me that the mere breath of this lizard was fatal to man. F. H. SNOW.

Lawrence, Kan., Jan. 19.

Queries.

24. SILVER DOLLAR IN A POTATO. — Is there any likelihood of the truth of the following story found in a recent New York paper? On Friday last a young woman was engaged in boiling some potatoes. She tested nearly all of the Irish apples, and found that they had been cooked to the proper consistency save one. This particular 'spud' remained as hard as adamant, and, although she allowed it to boil for fifteen minutes longer than the others, it showed no signs of yielding. At last she succeeded in splitting the vegetable open, and in the centre she found a silver dollar with the date of 1886. The heart of the 'spud' was colored a blackish brown, but the outside presented a normal appearance. The silver dollar was black as ink.

Answers.

22. WASP-STINGS. — Bumble-bees and honey-bees, as well as wasps, may be safely taken in the hand while holding the breath, provided the experimenter will catch only males, which are easily recognized by their long antennæ and their face-colors. Have your correspondents been sure that they captured female wasps, which alone have stings? In the autumn the males are most plentiful, and in that season one may easily show an astonished companion how safely a wasp can be handled while holding one's breath, and afterwards while breathing also; but in doing this, I always take care to catch the right kind of wasp first. My faith in the supposed safeguard has never been sufficient to try the experiment intentionally with female *Aculeata*. Will not Mr. Safford make the test in the spring, and report his results once more? He will then doubtless agree with *Life*, that the most important thing in holding a wasp is how to let go. W. M. D.

Cambridge, Mass., Jan. 20.