

Correspondence.

Value of Tornado Predictions.

To the Editor of the Scientific American:

The attention of Congress is called to the fact that some of the terrible loss of life and property due to tornadoes can be averted. In 1882, Professor T. B. Maury asserted, what was then the fact, the prediction of a tornado was to be attained by the science of meteorology. In less than two years from that time some predictions of tornadoes were successfully made by Lieutenant John P. Finley of the Signal Service. The percentage of verified predictions is steadily increased by knowledge of the average conditions preceding each series of tornadoes, thus making the predictions more definite and local with each succeeding year. Already the predictions of safety for the day are effective. Of 3,228 predictions unfavorable to tornadoes made in 1884, 3,201 were verified; and of 38 predictions that tornadoes would occur, made in April and June, 1884, 18 were verified. Of 19 predictions that tornadoes would occur, made in June and July, 1885, 15 were generally verified. When tornadoes were predicted, in no instance did violent storms fail to occur, either hurricanes, tornadoes, or hail.

The failure of some predictions is doubtless due to inaccurate and insufficient reports from sparsely settled regions. While it is admitted that nothing like absolute control of these phenomena has been attained, yet the above figures clearly justify the presence of tornado signals either of safety or danger at every telegraph station in Kansas, Nebraska, Missouri, Illinois, Iowa, Ohio, Michigan, Wisconsin, Georgia, and North Carolina, especially during April, May, June, July, August, and September. It is hoped that Congress will direct the Signal Service to submit estimates of the expense necessary to establish such a system of signals. The cost would be a few thousand dollars for flags or colored disks, and for telegraph service.

WILLIAM A. EDDY,

Tornado Reporter, Signal Service, U. S. Army.
135 East 16th St.,
New York, October 14, 1885.

The Stone Pile Meadow, Washington Territory.

To the Editor of the Scientific American:

The article on the St. Lawrence chub nests, in the SCIENTIFIC AMERICAN of October 3, goes to explain the stone pile meadow in Washington Territory, on the old road from the Colorado River to Seattle. I think that some years since your journal printed a view of this meadow, filled with just such heaps of stone as the chub makes in the St. Lawrence. It is a very curious geological feature, and has never been explained to the satisfaction of the scientific world. Yet the hypothesis of these large mounds being the nests of some aquatic creature was advanced with a good deal of hesitation by, I think, Mr. Gibbs, who published an account of this meadow and its mounds.

M. C. MEIGS, U. S. A.

Washington, D. C., October 3, 1885.

Curious Effect of Vertical Wind Pressure upon a Tree.

One of the strangest of cyclone freaks is recorded by a correspondent of the *Pittsburg Dispatch*. The scene of it is at Washington Court House, O., and concerns an "apple tree with long, spreading, heavy branches, perhaps extending to a height of twenty-five feet. It is a tree of perhaps twenty-five years' growth, and undoubtedly has roots as stout and almost as widespread as its boughs. Its trunk is not less than fifteen inches in diameter; it was a thrifty, vigorous tree without an unsound branch, and the family have for years driven their high top buggy beneath its branches, for it shades the driveway into the yard. A short and stubby man cannot now walk under it without ducking his head. Does the reader imagine that it was uprooted? That might, indeed, seem possible, but it is not true. Without breaking so much as a twig of its foliage, the atmosphere drove that tree right down two and a half or three feet into the ground. The hole enlarged about the base of the tree as it now stands shows how much larger is the base that has been forced beneath the surface."

Infringement of a Design Patent.

In an action brought for the infringement of a patent for a design for carpets, no profits were found to have been made by the defendant, but the Circuit Court in which the action was tried allowed to the plaintiff as damages for every yard of carpets made upon the design in question a sum equal to the profit made by the plaintiff in making and selling carpets with the patented design. The Supreme Court of the United States held that this award of damages was improper, and that only nominal damages should be allowed, there being no evidence as to the value imparted to the carpet by the design. *Dobson vs. Hartford Carpet Company*.

Notes on Natural Gas.

J. M. Guffey & Co. struck a big vein of gas at their well on the farm of S. F. Dunn, in the Murraysville district, on the 25th of July. Work was commenced six weeks previous, and the gas sand found at a depth of 1,630 feet. Prof. Edward Orton, State Geologist of Ohio, made two measurements of the product of the well, and gave the following as the result: "My preliminary estimate makes the output near 75,000,000 cubic feet per day, or an equivalent in heating power of from 150,000 to 200,000 bushels of coal."

The gas well drilled by Gunning & Lind at Madison, O., was commenced on the 29th of June. The first vein of gas was struck July 14, at a depth of 780 feet. It has since been drilled a total depth of 1,025 feet, and is said to have a pressure of 100 pounds to the square inch.

The Pittsburg, Virginia & Charlestown Railroad Co. have refused the Acme Gas Co. the right to lay pipe under their track at Homestead, and a large force of men have been placed on duty to prevent the gas company making the attempt.

William Laney, a Bradford contractor, is drilling a well for natural gas for a Cleveland rolling mill. In drilling the well to the depth of 2,000 feet, they have passed through three veins of salt having an aggregate thickness of 250 feet. One of the salt veins has a thickness of 164 feet.

The Shenango Natural Gas Co., organized with a capital stock of \$350,000, for the purpose of bringing gas to New Castle, are drilling for the vapor in the western tier of townships in Butler County. Up to August 15 they have completed two dry holes and two gas wells, and are now drilling two more wells. The wells which they have drilled are from ten to seventeen miles east of New Castle. In this section they find the gas in the regular Butler County gas sand, and about 1,200 feet below the limestone which serves as a basis from which depths are calculated in drilling operations in this county. The Shenango Gas Co. will lay altogether 25 miles of 10 inch, 8 inch, and 6 inch gas pipe from their wells to New Castle this year. Phillips Bros. are drilling a well in the second tier of towns from the west line of Butler County.

Contracts have been made to drill a well for natural gas at Toledo, Ohio.

A charter has been granted to the People's Natural Gas Company, Pittsburg.

The Richards & Hartley Glass Company have completed another good gasser at Bull Creek.

A fair gas well was struck at Bethel Station, Ohio, on the B. Z. & C. R. R., July 6, at a depth of 1,100 feet.

The Bridgewater Gas Co.'s fifth well was completed August 12, near Rochester, in Beaver County. It is the largest well yet struck by that company.

Gas was struck in an artesian well which was being bored near Hoffman's brewery, Cincinnati, on the 21st of June. The owner claims it will save them \$1,500 a month in fuel. Some excitement prevails over the discovery.

The Allegheny Poor Board has accepted the proposition of the Philadelphia Natural Gas Company to supply the buildings on the City farm with natural gas during the ensuing year for \$1,300. The cost of coal at the farm last year was \$1,800.

Charters have been issued to the Manufacturers' Natural Gas Company, of Pittsburg; capital \$30,000; Canonsburg Light and Fuel Company, of Washington County, capital \$20,000.

The Natural Gas Company, of Petrolia, Pa., announces that it is ready to supply the citizens of that place with gas at the rate of two dollars per month for each fire in dwelling houses.

The estimated value of the natural gas used in the United States in 1884, was \$1,460,000, as against \$475,000 in 1883. The value is computed from that of the coal superseded by natural gas.

While boring for water in the vicinity of Clinton, Illinois, a vein of natural gas was struck at a depth of ninety feet. The quality has been demonstrated to be good. Steps are taking to utilize the discovery.

Natural gas was struck at Port Colborne, Ontario, at a depth of 420 feet. The force is sufficient to light up the town, and on August 11 the well was tubed and its product run into the gas mains of the town.

The Hite Natural Gas Company, of Pittsburg, organized by P. Y. Hite and S. M. Ross, are laying pipe to Sharpsburg. The paid-up capital of the company is said to be \$250,000. The estimated cost of the line is between \$300,000 and \$400,000.

The second well of the National Tube Works Co., of McKeesport, was struck at Murraysville, on the 7th inst. The flow is unusually strong, and it sends forth its volume of gas with a tremendous roar, which can be heard above the noise of the other wells in that locality.

The East End gas district, in Pittsburg, is failing. To-day but five wells produce gas that is worth gathering. They are Westinghouse No. 1, the first struck, No. 2, No. 5, No. 6, and the well at the Brace Laundry. The total amount produced by all is comparatively insignificant. In one day they do not produce as much as the Westinghouse No. 1 did during its first

month in one-half hour. Insignificant as it appears when compared with the great well, the amount is still enough to supply, through the Philadelphia company, 150 houses and a half dozen works in the East End. It is now little over a year since the territory was thought to be the richest gas field in the world, yet during that time it has virtually been exhausted. The supposition is that the Westinghouse No. 1 dipped into a "pocket" of gas, the like of which may never be discovered again.—*Petroleum Age*.

New Products of Sevres Manufacture.

One of the most remarkable exhibits that is to be seen at the Exposition of Decorative Art at the Palace of Industry is undoubtedly that of the Sevres manufactory, in which are to be found numerous specimens of beautiful porcelains due to the new processes of Mr. Lauth, regarding which different judgments have been pronounced.

In an interesting lecture last week the learned director of the Sevres factory described the present state of the porcelain industry, which is one that our country ought to feel proud of. For our part, we unreservedly admire the new products, and we believe it our duty to give herewith some information on this subject, in order to show the difference that exists between the old hard paste of Sevres and the new.

When the first researches were made on hard porcelain, there was taken as a model the porcelain of China which the Portuguese had imported into Europe. After long researches, manufacturers at Meissen, in Saxony, succeeded in making a product that was nearly similar, to judge by external appearance; but from the standpoint of decoration it was soon seen that the Meissen porcelain, as well as all other hard ones of Europe, could not be ornamented with enamels in relief after the manner of those of the East. They could only be painted with colors laid on in extremely thin coats, and the colors often remained dull, and never reached the brilliancy of the enamels employed by the Orientals. When an endeavor was made to fix enamels upon the hard porcelains of Europe, no success was obtained, since there was such a want of affinity between the groundwork and the enamel that the latter scaled off and removed the glazed surface with it, and this too to a greater degree with the Sevres hard paste than with any other. Deprived of this method of decorating with enamels, which permits of modeling the most brilliant subjects in relief, Sevres had to be content with the substitute that was found in colored pastes. These latter are capable of forming reliefs, but they have neither the transparency nor brilliancy of enamels, since pastes are essentially opaque.

The desire to have a porcelain paste fitted for decoration had existed at the Sevres manufactory for a long time when Mr. Lauth was appointed its director. In 1850 Ebelmen and Salvétat had undertaken some researches in this direction, but did not get satisfactory results. In 1875 the committee on the improving of Sevres ware got the manufactory to resume its researches concerning a paste that should take enamels. The problem was not yet solved, and no advance, even, had been made when Mr. Lauth, in 1879, with the collaboration of Mr. Vogt, took it up. These learned chemists were fortunate in their researches, and in less than a year they began the manufacture of a paste at Sevres which allowed of all kinds of decoration of the old hard porcelains, and also of Oriental ones. In short, the paste that Mr. Lauth has begun the manufacture of is a hard one, and more like the Oriental porcelain which an endeavor was made to imitate when the old hard porcelain was manufactured. The elements that enter into hard porcelain, both the old and new, are the same as those that were learned from the Chinese—kaolin and petunse.

Mr. Lauth, in concluding his lecture, fully satisfied those who had raised various objections to the new porcelain of which he is the inventor. It is in no wise the intention, said he, to substitute it for hard paste (which is so valuable, so beautiful, and in so much repute), since the latter possesses qualities of solidity that no other porcelain can equal for daily domestic use; but he only intends to employ his new processes at Sevres, along with the manufacture of the old hard paste, for the production of exclusively decorative objects, such as are created solely for the delectation of the eye, since these processes allow artists to use a complete palette of very beautiful enamels that have much analogy with those of the East.—*La Nature*.

Light Waves of Increased Length.

At the recent meeting of the American Association, Prof. Langley showed that in addition to the wave lengths in and beyond the visible spectrum, he has detected, by means of the bolometer, vibrations of much greater wave length than have heretofore been known, being several octaves below the red end of the spectrum, thus extending the range of recognized vibrations to between six and a half and seven octaves, including the one octave of visible rays. This delicate instrument has enabled him to detect heat radiation from objects of as low a temperature as -2° Cent.