

fish from the creek into the river. The upper portion of these wooden structures has entirely disappeared in the long lapse of time that has ensued since they were placed there. The edge of the flats on which the stakes stood¹ was covered with about two and a half to three feet of water on the flood tide. At slack water it forms a low mud-bank slanting toward the creek. Three different stations² were located, probably all that exist, in the bed of the creek referred to. This opinion is based upon careful examinations, made within the past four years, of nearly every inch of ground in the neighborhood of the wooden stake-ends, by dredging in sections between certain points marked upon the creek's bank. The implements found in one of the stations are generally made of argillite, with a few of quartz and quartzite. Some were very rude in character, and not unlike the palæoliths found by Dr. C. C. Abbott in the Trenton gravels.³ Objects of stone and pottery rather better in finish than those at station A have been found at the two other stations, B and C.'

The remainder of my letter of November, 1887, is correct: the other portions must be read subject to the changes that this repetition may suggest, which have been copied from a duplicate letter made by me before sending it (in October, 1889) [1887? —ED.] to the journal referred to, for publication.

A unique collection from the supposed aboriginal fish-weir sites is now at the Peabody Museum, Harvard University, where any one interested in the subject may examine them. Most of the objects presented were collected by myself and friends, whose names are attached to their specimens. Work was abandoned on the locality two years ago, careful hand-dredging having exhausted the relic-beds. Last summer the steam-dredge used in deepening the creek's bed, so that sloops might approach the brick-yard standing on its bank, uprooted the various stations, A, B, and C, completely obliterating them. A few specimens of interest were, however, secured by some of the workmen in the brick-manufactory and myself. Some of these specimens have been presented to the Peabody Museum, with letters from the donors in regard to them.

¹ These had the alluvium excavated from around them, and were photographed in place, before removal.

² The term "station" was adopted at Professor Putnam's suggestion, because certain spots in the creek's bed, several feet apart, were found to yield implements.

³ It may be well to remark, that, since this letter has been published in the *American Antiquarian*, implements of like kind have been found in the boulder clay at the brick-yard alongside of Naaman's Creek mouth. The implements that were brought up by the hand-dredge at station A may therefore have been washed out of the brick and boulder clay deposits, and scattered among the alluvial deposits in which the wooden stakes were found.

I hope this letter, giving a brief *résumé* of the finds at Naaman's Creek mouth, will cause all absurd romance in regard to pile-dwellers on the Delaware to cease. If they ever did exist, I have certainly failed to find any traces of such a people, and never upheld any such nonsensical theories. HILBORNE T. CRESSON.

Philadelphia, Feb. 6.

Oscillations of Lakes (Seiches).

THE ten-minute wave that Mr. Ledyard reports on Cazenovia Lake, N.Y., in *Science* of Feb. 7, is apparently an oscillation of the same kind as those known in Switzerland by the name of *seiches*. They have been minutely studied for Lake Geneva by Professor Forel of Morges, Switzerland, who has written many reports on his observations for the *Archives des Sciences*, about 1877-80. He regards them as wave-like oscillations, commonly uninodal, of the whole body of water in the lake, produced by external disturbance, such as an earthquake, or a change of atmospheric pressure like that occurring in thunder-storms or wind gusts. He finds that the full period of oscillation for the uninodal wave is $2l \div \sqrt{gh}$, in which l is the length of the lake, and h the depth; that is, the velocity of the wave is proportional to the square root of the depth. Sometimes the *seiche* is transverse, or from side to side, instead of longitudinal or from end to end. In Lake Geneva the longitudinal *seiche* has a full period of 73 minutes, which, for the length of 73.2 kilometres, indicates a mean depth of 114 metres. The transverse *seiche* oscillates in 10 minutes and 17 seconds, where the breadth of the lake is 13.8 kilometres, indicating a mean depth of 205 metres. These depths agree well with the results of soundings. Similar phenomena have been described for other Swiss lakes.

Very little has been said about *seiches* in this country. Professor John LeConte has called attention to the probability of their occurrence in Lake Tahoe, and predicted their periods by Forel's formula as 18 and 13 minutes (*Overland Monthly*, 1883). *Science* (May 7, 1886, p. 412) has a note on the *seiches* of Lake Ontario, as observed by Rhodes at Oswego, N.Y., indicating a period of about an hour. The lakes of central New York, near Mr. Ledyard, afford the best possible opportunity for examination in this regard. A simple self-recording apparatus to determine the oscillations of water-level could be driven by an ordinary clock; and a month's record from the end and the middle side of a lake would probably suffice to determine its *seiches* with fair accuracy.

W. M. DAVIS.

Harvard College, Feb. 10.

I took Cold, I took Sick, I TOOK **SCOTT'S EMULSION**

RESULT:

**I take My Meals,
I take My Rest,**
AND I AM VIGOROUS ENOUGH TO TAKE
ANYTHING I CAN LAY MY HANDS ON;
getting fat too, FOR Scott's
Emulsion of Pure Cod Liver Oil
and Hypophosphites of Lime and
Soda NOT ONLY CURED MY Incip-
ient Consumption BUT BUILT
ME UP, AND IS NOW PUTTING

FLESH ON MY BONES

AT THE RATE OF A POUND A DAY. I
TAKE IT JUST AS EASILY AS I DO MILK.
SUCH TESTIMONY IS NOTHING NEW.
SCOTT'S EMULSION IS DOING WONDERS
DAILY. TAKE NO OTHER.

A New Method of Treating Disease.

HOSPITAL REMEDIES.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance, the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, *has ruined more stomachs than alcohol*. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

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CALENDAR OF SOCIETIES.

Anthropological Society, Washington.

Feb. 4. — Washington Matthews, Gentes of the Navajos; John G. Bourke, Gentes of the Apaches.

Biological Society, Washington.

Feb. 8 — Frank Baker, An Undescribed Muscle from the Infraclavicular Region of Man; C. D. Walcott, A New Genus and Species of Ostracod Crustacean from the Lower Cambrian; Cooper Curtice, The Moultings of the Cattle Tick; Lester F. Ward, The Flowers that bloom in the Winter-Time.

American Academy of Arts and Sciences, Boston.

Feb. 12. — Henry W. Williams, On Reconstruction of Languages.

Engineers' Club, St. Louis.

Feb. 5.—Mr. George W. Dudley read a paper on "Tests of Water-Works Engines." He explained the meaning and origin of the term "duty." He explained in detail the precautions necessary to be taken in making duty tests, in order that the results might be of value. He submitted reports in detail of two tests of compound condensing duplex direct-acting pumping-engines,—one of 3,000,000 gallons capacity per twenty-four hours, giving a duty of about 62,500,000 foot-pounds per hundred pounds of coal; the other of 5,000,000 gallons capacity, giving a duty of about 75,000,000. In the discussion, Mr. Bryan called attention to a simple rule for comparing the efficiency of pumping-engines with ordinary steam-engines, the evaporation in pounds of water per horse-power per hour being equivalent to the constant 1,980, divided by the duty expressed in millions of foot-pounds, based upon ten to one evaporation. He called attention to remarkable results that were being guaranteed by makers of compound and triple-expansion condensing-engines now being built for electric-light purposes.

Professor Johnson stated, that, if due allowance were made for engine friction, he thought the results would not be so unfavorable to pumping-engines as shown by Mr. Bryan. Professor Gale stated that pumping-engines were subject to certain losses, due to friction, for which they were given no credit. This being allowed for, the efficiency would be increased. He also showed that the cost of high-duty engines was an important item, as the increased interest and depreciation accounts might overbalance the saving. He also showed that pumping-engines were usually put in of greater capacity than required, so that they were operated under a disadvantage. Mr. Holman called attention to the relative importance of duty as compared with other items of expense in pumping water. In St. Louis the coal bill was less than half of the total cost, the items of labor and repairs being of almost equal importance. He also expressed great doubt as to the reliability of the tests of

the old Cornish pumping-engines, which were usually held up as standards.

The secretary then read for Mr. J. H. Kinealy a paper entitled "Some Mathematics on Ventilation." The author tested the commonly accepted rules of practice by mathematical deduction, with the result of showing the practice to be well founded. In the discussion Professor Gale stated that the intention of the author was to investigate what difference, if any, must be made in the provision for ventilation between a room occupied only temporarily and the same room occupied continuously.

Exchanges

[Free of charge to all, if of satisfactory character. Address N. D. C. Hodges, 47 Lafayette Place, New York.]

Correspondence and exchanges solicited with persons interested in the study of American and Mexican antiquities. L. W. Gunckel, 36 Elm St., New Haven, Conn.

I wish to exchange or purchase well-fixed or hardened vertebrate embryos for sectioning. Desire specially reptilian embryos, but will be glad to secure any material that I do not possess. Thomas G. Lee, M.D., Histological Laboratory, Yale University, New Haven, Conn.

Wanted.—Books and journals, American or relating to Photography—exchange or purchase. C. W. Canfield, 1,321 Broadway, New York.

Wanted.—Marine univalves of the west coast, from U. S. line southward, and from Pacific Islands, offered; exchange from a general collection. — F. C. Browne, Framingham, Mass., Box 50.

D. E. Willard, Curator of the Museum, Albion Academy, Albion, Wis., will answer all his correspondence as soon as possible. Sickness and death in the family, with many other matters, have prevented his answering as promptly as he should have done.

I will give 100 good arrow heads for a fine pair of wild cattle horns at least two feet long. If you have shorter or other horns write me, and also how many arrow heads you want for them. I will also exchange shells, minerals and arrows. W. F. Lerch, 308 East 4th St., Davenport, Iowa.

I wish to purchase Vol. 7 of the *American Chemical Journal*, either bound or unbound. State price. Address, Wm. L. Dudley, Vanderbilt University, Nashville, Tenn.

A few duplicates of *Murex radix*, *M. ramosus*, *M. brandaris*, *Cassia rufa*, *Harpa ventricosa*, *Oliva triatula*, *O. reticularis*, *Chlorostoma funebrale*, *Cypraea caput serpentis*, *C. lynx*, *Lottia gigantea*, *Acmola patina*, *Chama spinosa*, and some thirty other species, for exchange for shells not in our collection. List on application. — Curator Museum, Polytechnic Society, Louisville, Ky.

Photographs and Stereoscopic views of Aborigines of any country, and fine landscapes, etc., wanted in exchange for minerals and fossils. — L. L. Lewis, Copenhagen, New York.

Droysen's *Algemeiner Historischer Hand-atlas* (Leipzig, 1886.) for scientific books — those published in the *International Scientific Series* preferred. — James H. Stoller, Schenectady, N.Y.

Astronomical works and reports wanted in exchange or to buy. Reports of observations on the planet Neptune and its satellite specially desired. — Edmund J. Sheridan, B.A., 295 Adelphi St., Brooklyn, N.Y.

I would like to correspond with any person having Tryon's "Structural and Systematic Conchology" to dispose of. I wish also to obtain State or U.S. Reports on Geology, Conchology, and Archæology. I will exchange classified specimens or pay cash. Also wanted a copy of MacFarlane's "Geologists' Traveling Hand-Book and Geological Railway Guide." — D. E. Willard, Curator of Museum, Albion Academy, Albion, Wis.

Morris's "British Butterflies," Morris's "Nests and Eggs of British Birds," Bree's "Birds of Europe" (all colored plates), and other natural history, in exchange for Shakesperiana; either books, pamphlets, engravings, or cuttings. — J. D. Barnett, Box 735, Stratford, Canada.

I have *Anodonta opalina* (Weatherby), and many other species of shells from the noted Koshkonong Lake and vicinity, also from Western New York, and fossils from the Marcellus shale of New York, which I would be glad to exchange for specimens of scientific value of any kind. I would also like to correspond with persons interested in the collection, sale, or exchange of Indian relics. — D. E. Willard, Albion Academy, Albion, Wis.

Will exchange "Princeton Review" for 1883, Hugh Miller's works on geology and other scientific works, for back numbers of "The Auk," "American Naturalist," or other scientific periodicals or books. Write. — J. M. Keck, Chardon, Ohio.

Shells and curiosities for marine shells, curiosities or minerals address W. F. Lerch, No. 308 East Fourth St., Davenport, Iowa.

CATARRH.

Catarrhal Deafness—Hay Fever.

A NEW HOME TREATMENT.

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N.B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King Street, Toronto, Canada.—*Christian Advocate*.

Sufferers from Catarrhal troubles should carefully read the above.

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