

would not be better to assume, in rating, the same measure of precision for all.

At any rate, the study of these curves cannot help being of interest to teachers.

ARTHUR E. BOSTWICK.

Montclair, N.J., Nov. 22.

Cave-Air for Ventilation.

COL. CRUMP'S effort to utilize cave-air has a personal interest. I warm my dwelling with furnace-heat, and in place of taking in air through a basement window, as is usual, I place an intake pipe or tube (I use stone pipe) under a porch upon the south side of the house, which passes under ground eight feet, around the building to the north side, beneath the cellar wall and below the cellar floor, to the furnace, — a length of about a hundred feet. The size of this pipe should be the same as the chimney. This must depend upon the size of the building to be warmed. My chimney is eighteen inches clear space. My house contains twelve rooms. This chimney is sufficient to ventilate the house, and carry off the smoke from the furnace. Sometimes it is necessary to build a small fire in the bottom of the chimney, where provision is made for such purpose. Ventilating-tubes are placed under the floor from the outside corners of the rooms, to draw off the cold air on the floor, which is constantly being replaced by the warmed air from the ceiling. Now, the advantage of this improvement in the use of cave-air is that in cold weather a modified air comes into the furnace. In hot weather, using the same apparatus to cool the air before coming into the house, the windows should be closed. The

difference of temperature is from ten to fifteen degrees in the shade.

I have used it successfully for two summers, and I know of no system so satisfactory.

W. H. LEONARD.

Minneapolis, Nov. 18.

INDUSTRIAL NOTES.

Elektron Manufacturing Company.

A FEW weeks ago fire destroyed the factory of the Elektron Manufacturing Company of Brooklyn, whose Perret motors and dynamos were described in *Science* recently. The company at once secured a larger factory, at 79 and 81 Washington Street, near the bridge, equipped it with a complete installation of special tools and machinery, and are doing their best to catch up with their orders, which had fallen far behind during their enforced idleness.

Electrical Accumulators.

IN the suit of The Electrical Accumulator Company *vs.* The Gibson Electric Company in the United States Circuit Court for the Southern District of New York, which was instituted in February last, the complainants have recently moved for a preliminary injunction, and Judge Lacombe on Friday last granted the motion, and the injunction issued. The complainants' testimony shows conclusively that the Gibson Company have continuously infringed the Faure patent, and that their various modifications are infringements.

CALENDAR OF SOCIETIES.

Biological Society, Washington.

Nov. 30. — Theobald Smith, Preliminary Observations on the Micro-organisms of Texas Fever; D. E. Salmon, General Remarks on Texas Fever, illustrated by Lantern-Slides; C. D. Walcott, Description of a New Genus and Species of Inarticulate Brachiopod from the Trenton Limestone; Frank Baker, An Undescribed Muscle of the Infraclavicular Region in Man.

Engineers' Club, Philadelphia.

Nov. 16. — Mr. William B. Spence exhibited a working model of the Rimmer oxidizer, a filtering-material, which he described, and for which he made various claims as to its utility in the purification of water by oxidation. He stated that the material used is an English invention, and that it is known as "magnetic carbide of iron." It consists of a mixture of granulated iron ore and carbon. The iron ore is said to be cleaned of all natural impurities by a patented process. It is then chemically treated at a certain temperature. It is claimed that this material will absorb and retain a large quantity of oxygen from the atmosphere. In use it is charged daily with atmospheric air, when, it is claimed, a re-action takes place with the impurities which have accumulated in the filtering material, and that the result passes off in the form of gas. It is claimed that metals in solution in the water will form insoluble oxides. The upper layer of the filtering plant consists of sand, for the removal of suspended matter by mechanical filtration, and the lower layer of the material above described for the chemical removal of impurities in solution. It is claimed that both vegetable and animal organic impurities and metallic contaminations are entirely removed by this process. The following

tests were made in the presence of the meeting. The filtering materials were contained in a large glass funnel. Water, as muddy as that of the Schuylkill River during freshets, was made apparently perfectly clear. A solution of sulphate of iron in water was made, and a portion thereof passed through the filter. The unfiltered and filtered portions were then tested with ferrocyanide of potassium. The former showed a distinct blue tint, while the latter remained perfectly clear, showing the elimination of the iron. Lead and copper tests seemed to show the same results. To illustrate the destruction of organic matter, sulphide of ammonia, sulphide of iron, and acetate of lead were added to water, making a compound which was almost black, and of strong and unpleasant odor. After filtration, it was clear, and tests seemed to fail to discover any trace of the impurities. A mixture of copying-ink and water was passed through the filter with the same results.

Boston Society of Natural History.

Dec. 4. — R. T. Jackson, Certain Points in the Development of the Mollusca; J. Walter Fewkes, A Remarkable Instance of Rock Excavation by Sea-Urchins.

Engineers' Club, St. Louis.

Nov. 20. — Mr. Robert Moore addressed the club on the subject of "Railway Culverts." This question was usually given too little attention. The speaker described the various forms of culverts used, with the advantages and disadvantages of each, also stated the methods of determining the size and best mode of construction. He stated that sewer-pipe, while admirably adapted for small culverts, should not be used over fifteen inches in diameter. For larger sizes, cast-iron pipe answered well. Cast-iron pipe which had been condemned for heavy

pressures was being largely used for this purpose. Mr. Moore also presented a diagram, based on Kutter's formula, using a value of 17 for n , bearing in mind that one inch of rainfall per hour is equivalent to one cubic foot per acre per second. In the discussion, Mr. Ferguson described a number of practical points of difficulty he had met with. The discussion was also participated in by Messrs. J. A. and W. L. Seddon, M. L. Holman, and A. W. Hubbard. Mr. Holman stated that iron pipe for this purpose was being made as large as six feet in diameter and ten feet long, being lighter and of poorer quality than the pipe used for water-service.



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