

given after some simple but reliable investigation by a specialist. Such specialists, if there are any competent in the State, should be found among the ranks of our Society; and to it, when we have become firmly established, the investigation of such matters might probably be referred. It might be considered advisable later to obtain an official recognition from the legislature of the State, such as is held by the National Academy of Sciences from the General Government. In the Charter of this Academy, it is provided that on the request of Congress it shall investigate and report on any question of public interest to which scientific investigation is properly applicable.

In conclusion, I would call on members to bear in mind in their papers and discussions, that clearness and conciseness of statement is an essential requisite; and taking warning from the address of their President, not to talk for the sake of talking.

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*Formation of Hills by Mineral Springs on the Island of Java*, BY P. H. VAN DIEST.

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(Abstract.)

About midway between Batavia and Buitenzorg are two white limestone hills formed by deposition of calcium carbonate as aragonite from springs. The one hill is six hundred feet in length, one hundred in width, by sixty in height. The second, at a distance of six hundred feet from the first, is of about the same dimensions. The waters which have formed these hills have a temperature of 113° F. and are charged with calcium bicarbonate, some magnesium carbonate, chlorides of calcium, magnesium and sodium, and hydrogen sulphide. Rising through various channels, the water has flowed over the surface of the ground, depositing continually calcium carbonate until the present elevation has been reached; the pressure being sufficient to raise the water so high and no higher, as can be observed in basins about the orifices of the channels opening along the summit, the water of which does not overflow. The pressure of gas in the subterranean waters appears to vary greatly, and was sufficient in 1871 to rend asunder one of the hills with a tremendous report.

The texture of the deposited material differs greatly according as deposition has taken place, rapidly from flowing water, or slowly from tranquil basins. In the more compact parts it is often spotted and banded gray and black. The cause of this is plainly to be found in the enclosure by the deposited carbonate of a species of algæ growing in the basins. Recent enclosures color the surrounding material dark green, which by subsequent slow carbonization of the organic matter becomes black.

The chemical composition of the two hills differs somewhat. In the one case it is 92 per cent.  $\text{CaCO}_3$ , 2 per cent.  $\text{SrCO}_3$ , 4 per cent.  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{SiO}_2$ ,  $\text{H}_2\text{O}$ ; in the other, 96 per cent.  $\text{CaCO}_3$ , 0.08 per cent.  $\text{SrCO}_3$ , 15 per cent.,  $\text{MgCO}_3$ .

These hills have long served as a source of quicklime, and it is estimated that since 1812 twice their present volume of quicklime has been taken from them without diminishing their size, so rapid is the deposition of the carbonate. Deposition is artificially promoted by cutting trenches from the central channels, thus allowing more rapid escape of the waters and greater exposure of surface.

Mr. Hillebrand spoke of a peculiar formation of ice in a beaker at the Geological Survey laboratory. The ice possessed an unusual crystalline structure, in that from a point near the center of the mass prisms radiated in all directions, reaching to the sides of the beaker and to the surface. Upon the surface adjoining the sides of the beaker the terminations of the prisms were very plainly visible in hexagonal, facet-like figures. The same appearance could be seen less distinctly on the upper and lower surfaces of the ice. Mr. Hillebrand suggested that the structure resulted from a sudden crystallization at a temperature below the freezing point, analogous to the sudden crystallization of super-saturated solutions under certain conditions.

Mr. Pearce gave notice of a new and rapid method for the estimation of arsenic in ores, mattes, etc., and particularly useful in the presence of copper, which he hoped would be explained in detail at the next meeting.

Mr. Pearce also spoke of the tin veins of Cornwall, Eng. as confirming the view expressed in the address of the President, that many so-called "fissure veins" are impregnations of "country" rock from fault or fissure planes.