

HIDDENITE.—A NEW MINERAL.*

When Dr. J. Lawrence Smith wrote his paper on hiddenite, he embraced in it all the facts then developed.

His announcement was written fully two months prior to its publication, and it was in this short interval, and also from subsequent work at the locality that the points I have to add to this paper have been developed by Mr. W. E. Hidden.

The mistake of calling this mineral diopside was a very excusable one, as spodumene had never before been found unaltered, transparent, and of such color, and as here discovered resembling nothing so much as diopside, which latter mineral is always transparent, green, and often worthy of use as a gem. Spodumene is also closely isomorphous with diopside, differing only a fraction of a degree in its prismatic angle, and like it also in its easy cleavage in two directions.

The true character of this new variety of spodumene was only discovered when an attempt was made to find the cause of its beautiful color by chemical analysis.

Hiddenite or lithia-emerald is to the species spodumene precisely what emerald is to the species beryl, being only a beautiful green variety.

Beryl, as a mineral species, is of very common occurrence, much more so than the species spodumene; both are found in large crystals, but either opaque or with only a trace of color.

It is strange, in fact remarkable, that the species spodumene, which has always been to mineralogists a very unsatisfactory mineral in form and color, should at last prove to be one of the most beautiful of minerals, in fact, a *new gem stone*.

It is to-day not only the finest and most beautiful of American gem stones, but like the emerald, has taken its place among the gems of highest rank and value.

Its color is one peculiar to itself, differing from the beryl emerald in its vividness or in a quality of color that I might better term ethereal.

I know of nothing that I can better liken the color of this new gem to than the beautiful color produced by falling bits of uranine in water. It is a green of rare brilliancy.

The cause of color is not as yet known, but it is probably caused by the same agent that produces the color in variscite *i. e.*, vanadium.

It might be asked why the new mineral has been so readily accepted as a gem of the first rank. I would answer, that it possesses all the characteristics which are considered vital in a gem stone, *i. e.*, perfection of color, hardness, transparency, and rarity.

Only a very small number have thus far been found, scarcely more than enough to properly introduce it as a gem.

As regards value, it has been sold for the price of diamonds of equal size, and in one instance a stone not entirely perfect, of about $2\frac{1}{2}$ karats weight, was sold at the rate of over \$125 a karat.

As yet the only dependence for procuring these gems is the narrow vein (only $2\frac{1}{2}$ inches thick and 2 feet in lateral extension) found by Mr. Hidden in Alexander County, North Carolina.

The lapidaries have had some difficulty in cutting this stone, its perfect cleavage in two directions sometimes causing it to cleave while undergoing the strain and pressure necessary in the cutting process.

They also find the stone harder across the ends than across the sides.

Its name in the gem mart is lithia-emerald. It was so named from the presence in it of over seven per cent of lithia, an element wholly absent in the beryl emerald.

The crystals in their natural state will be known to mineralogists under the name given to it by Dr. Smith, *viz.*, hiddenite.

This is the first *purely American gem*, and its remarkable beauty merits our highest praise.

Earache.

"In the course of practice you will often be called upon to attend a case of earache. This means, pathologically speaking, acute inflammation of the membrana tympani. Now, in such a case you may quickly subdue the inflammation, relieve the patient from the excruciating pain he is suffering, and save him, perhaps, from subsequent confirmed deafness. The treatment from which such a very desirable result may be obtained is similar to that which you will find so beneficial in analogous cases of eye disease; *viz.*, leeches behind the ear, hydrarg. c. cretâ and belladonna powders, with warm fomentations."—*Prof. Wharton Jones, F.R.C.S., F.R.S., in London Lancet.*

The Wasted Energy of Springs.

The State of Missouri contains a large number of strong-flowing fountains, Bryce's spring, on the Niaugua river, being, the *Age of Steel* says, probably the largest. It discharges 10,927,000 cubic feet a day, and flows away a swift stream forty-two yards wide. Its temperature is steady at 60° Fah., and ice never forms near it to impede machinery. Its flow is regular. Though the average annual rainfall of the State is forty-one inches, springs constitute the reliance of the streams for a steadfast flow of water. Several hundred springs are known to be large and forcible enough to supply the power required to run an ordinary mill or factory.

* Read before the New York Academy of Sciences, at a regular meeting held on March 7, 1881, by Geo. F. Knaz (mineralogist), with Tiffany & Co., New York.

SINGULAR FLOWER-LIKE FORMS OF ICE.

In the beginning of December of the past year, says Prof. Bombicci, in the *Rivista Scientifico-Industriale*, the whole surface of Southern Italy may be said to have been converted into a vast field of crystalline frost, giving the country an aspect at the time well deserving of the appellation of the *garden of Europe*. Infinite numbers of white and semitransparent corollas, resembling camellias and roses, of dazzling whiteness, and not rarely of very large size (since they were nearly a decimeter across), were seen spread in the form of a pure white and semitransparent sheet over a deep layer of snow throughout Lombardy, Piedmont, the province of Emilia, and the valley of the Po. Everywhere that this curious sheet of frost appeared there were seen these beautiful snow flowers. Their leaves and petals covered the fields in the country and the streets and squares of the city, the roofs and balconies of every house, and every hill and vale. Every hillock of turf was ornamented with corollas having transparent petals, and every cavity in the earth became a geode. One might have imagined that there had been a magic apparition of petrified flowers, some of them transformed into marble or alabaster, and others into porcelain or glass. Either in their masses or in their separate parts was reproduced the graceful curve of the most beautiful camellia, along with angularity of the ligneous scales of the pine cone, and the plane and intricate laminate crystallization of certain salts. Two types of aggregations of

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laminæ could be always distinguished: (1) that of the rose corolla, in whose laminæ, as in true petals, a very delicate curvature characterized both the superficies and the margin; and (2) the type with intricately-converging plane laminæ, in all of whose rigid diaphanous plates were exhibited striæ radiating from the base to the circumference, and zones of various degrees of transparency running around the circumference. Both of these remarkable forms are shown in the accompanying figure. In addition to these forms, the phenomenon, which lasted eleven days, was accompanied by the usual beautiful star-like snow crystals and myriads of plane hexagonal laminæ, with facets that presented a brilliant appearance as the sun shone upon them.

The Hudson River Tunnel.

The Hudson River Tunnel Company, after numerous delays, have, according to the *Daily Graphic* of March 8, succeeded in securing the lease from the Dock Department of a strip of land 100 feet square at the foot of Morton street, in this city, and will begin work within the next fortnight on the shaft on this side of the river.

The working shaft will be sunk at the foot of Morton street, near Pier No. 42, and will be much larger than the one on the New Jersey side of the Hudson, being forty feet in diameter, and will be excavated to a depth of seventy feet. On March 7 the engine to be employed in furnishing air for the air lock and in hoisting the earth from the well, was placed on the grounds, which have been inclosed, and another cargo of Haverstraw brick, in addition to 1,000,000 already stored there, has arrived.

The experience gained on the New Jersey side will render the work on this side of the river comparatively easy. The only obstacle of any account to be encountered and overcome is the loose silt and mud which extends thirty feet below low water mark. At a depth of sixty feet solid ground is found, but to make assurance doubly sure, the excavation of the shaft will extend ten feet further down, and from that point work will begin under the bed of the river. It is confidently expected that the shaft will be so far completed by the middle of June that work on the tunnel on this side will be begun, and if present calculations are not at fault, the New York and the New Jersey ends will meet in about the middle of the river early in 1884.

Work on the New Jersey side has been pushed ahead without intermission, day or night, since the fatal collapse of last fall, and on March 8) the assistant engineer in charge of the works reported that the south tunnel is now completed 330 feet under the river, and that the north tunnel is arched and walled for a distance of 300 feet. Two hundred men are employed, and an average of four feet is accomplished each day. When operations commence on this side between

eight and ten feet of tunnel will be completed per day. The precise route to be adopted from the foot of Morton street to Broadway, the New York terminus, is yet to be decided upon, but it is generally believed that it will be either through Bleecker street, Amity, or Fourth street.

LONG DISTANCE TELEPHONE SYSTEM OF DR. HERZ.

A new system of telephony, invented by Dr. Herz, is attracting a great deal of attention among electricians in Europe, on account of the surprising distances through which telephonic communication has been maintained by it. The first announcement of the invention in the papers of September last stated that conversation had been carried on through the cable connecting Brest and Penzance, a thing generally considered impossible, on account of the comparatively sluggish action of the electric current in submerged cables. The experiment proved sufficiently successful to encourage Dr. Herz to push forward his investigations, and, according to foreign advices, he has been rewarded by being enabled to carry on conversation through an actual distance of over six hundred miles over circuits having no special adaptation to telephonic communication.

Dr. Herz has apparently solved two difficult problems: that of increasing the amplitude of electrical vibrations, and of neutralizing currents foreign to the telephonic circuit. The first he accomplishes by a microphonic transmitter with multiple contacts, and a system of derived currents; the second by interrupting the line and interposing condensers or diffusers. We have received an extended illustrated description of this interesting invention, written by Th. Du Moncel, which will be published in full in SUPPLEMENT 274.

American Manufactures in India.

To the Editor of the Scientific American:

It is a pleasure to me to be able to tell our American manufacturers that their goods, in all branches of trade, find a ready market and have a preference here in India. There is a lack of goods sent out here, I mean of everything which would be adaptable to the country. I have given the subject due consideration, and what I would recommend would be the establishment of an amalgamated company, to consist of all departments of manufactures. All classes of American wares are preferred. Look, for instance, at the large number of stoves that have been sold out here; also, hardware of all kinds, ironmongery, etc. I need only refer you to the exports from the United States to India. The establishment of an American emporium here of purely American manufactured goods and products would be a success financially. Look at the demand for American dried fruits, for instance. What little does come gets into the hands of a very few dealers; and I can tell you I have often paid 50 cents a pound for dried apples, while only the other day I paid \$1.50 for a two-pound tin of Chicago salt beef.

Great quantities of goods are sold here labeled American, when they are not; for instance, I went into what is called a respectable establishment about a month ago to purchase an American stove. I was shown bogus articles. I told the dealer that no American would ever export such rubbish. I put the big blade of my knife full length into many of the joints, and others were filled in; the utensils were cut so uneven that on one side of a pot I looked at it was scarcely one-sixteenth, while on the other it was fully three-eighths. The way to stop this would be to establish a real sound American trading company to embrace every description of manufactures. A. LYLE.

Secunderabad, Nizam Dominions, East India.

Heavy Shipment of Grain on the Mississippi.

On the morning of March 6, the towboat Oakland, of the St. Louis and New Orleans Transportation line, left the former city with 263,000 bushels of corn and 90 bushels of wheat for foreign account. The grain was stowed in eight barges. The shipment exceeded by over 50,000 bushels any previous shipment, and the tow was the largest ever floated on the Mississippi River. It is said that three-quarters of the 1,100,000 bushels of wheat in the elevators of St. Louis will be exported by way of New Orleans.

Scratches or Cracked Heels in Horses.

A Canadian correspondent gives the following simple remedy for scratches in horses: "Having tried many lotions, etc., only to obtain temporary relief for my horse, I concluded to try a mixture of flowers of sulphur and glycerine, which I mixed into a paste, using sufficient glycerine to give it a glossy appearance, and the results I obtained in a short time were truly wonderful. I apply this paste at night, and in the morning before going out I apply plain glycerine."

BEE T SUGAR INDUSTRY IN CANADA.—The Canadian House of Commons has passed a resolution to exempt beet sugar from excise duty for eight years. This to encourage the manufacture of beet sugar in Canada.

THE BANISHMENT OF BEES.—At the petition of the Parisian refiners of beet root sugar, the Prefect of the Seine has proscribed bees in the neighborhood of the city. A single refiner in the 13th arrondissement estimates his losses at 25,000 francs.

PROFESSOR KLEBS, of Prague, has discovered peculiar microbia in the remains of patients who have died of typhoid fever. They do not occur in the bodies of persons who have been carried off by other diseases.