REMINISCENCES OF WILLIAM E. HIDDEN

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The late William Earl Hidden was a very keen, observing and intelligent collector. His early training as designer for a bank-note company—a profession in which he was very proficient—was brought to a close when he was twenty-four years of age, thru lack of proper encouragement on the part of the company, and thru his own restlessness. He preferred to spend his time looking up mineral localities, in mining, in the collecting and selling of coins, etc. Had he remained at his bank-note designing, no doubt he would have attained eminence in that line. He attended the evening chemical lectures at the Cooper Union from 1873 to 1876. We were students together in the chemistry and physics departments of the Cooper Union.

Among the many mineralogical trips which we took together, one which we made to Kingsbridge on the Fourth of July, in the early part of our acquaintance, was notable for our discovering, in an old wall, a splendid, doubly-terminated crystal of tourmaline. We narrowly escaped arrest for damaging this wall!

Hidden was highly "temperamental," and preferred not to settle in business in any one place; this resulted in his being more or less unfortunate in a business way, but it gave him the opportunity to visit many localities and to secure fine mineral specimens, which would not otherwise have been obtained.

(*To be continued.*)

PROCEEDINGS OF SOCIETIES

THE NEW YORK MINERALOGICAL CLUB,
FRIDAY, MAY 23, 1919

The regular monthly meeting for May was held on the 23d at the American Museum of Natural History with the President, Dr. Kunz, presiding, and an attendance of 47 members and guests. The minutes of the last meeting were read and approved. Nominations for members being in order, the name of Mr. Ernest Weidhaus was presented by Mr. Manchester.

The question of an excursion for Decoration Day was introduced by the Chair. Mr. Schernikow suggested Montville, N. J., as a possible objective for the Decoration Day Excursion. Chimney Rock was suggested by Capt. Miller. After some discussion the matter was referred to the Committee on Excursions with power to act.

As bearing upon the paper announced for the evening Mr. J. P. Wintringham drew attention to the interference figure given by a variety of isomorphous mixed crystals of the tartrates of sodium and potassium with sodium and ammonium. He stated that one set of refractive indices gave $\alpha = 1.490$, $\beta = 1.491$ and $\gamma = 1.493$, corresponding to a very low double refraction, 0.003. These indices change very rapidly with the color; with red the optic plane is parallel to (010) and the optic angle has a value of 2 E = 35°. On passing successively thru the spectrum this angle diminishes until 2 E becomes zero for some color near yellow, giving to the interference figure a uniaxial aspect. On progressing further thru the spectrum, 2 E again increases, but in a direction nearly at right angles to its former direction, that is, it is now parallel to (100); and at the blue end of the spectrum the value of 2 E becomes 41°. This type of dispersion occurs in a few other rhombic crystals, but is not so distinct or so extensive as in this instance. Dr. Francis D. Dodge, who prepared the crystals, called attention to the fact that the directions of the two optic planes do not appear to be exactly at right angles, but about 5° from a right angle. Mr. Wintringham stated that this anomaly could hardly be explained by the assumption that the crystals were not accurately cut.

Biographical sketches of Dr. Carl Adolph Hintze, Sir William Crookes and Dr. Max Bauer were read by Dr. Kunz, who in addition to furnishing some highly interesting personal reminiscences of these recently deceased distinguished scientists, exhibited autographed copies of their works and autograph letters from them.

Dr. Kunz then introduced the speaker of the evening, Mr. A. McL. Nicolson, of the Research Laboratory of the Western Electric Co., who read a paper of great interest, originality and value, on: "Speaking Crystals, a development of the physical property, piezo-electricity."

In comparing piezo-electricity with the somewhat better known property, pyro-electricity, Mr. Nicolson gave a short history of the related phenomena, beginning with Haüy's experiments on calcite, and touching on the relation established by J. and P. Curie, between pyro- and piezo-electricity. He noted how electrification takes place when the pressure, which is brought to bear upon a crystal exhibiting the phenomenon, is changed, either increased or decreased. He showed that when electricity is impressed upon a crystal exhibiting piezo-electricity, a deformation takes place in the atomic structure.

Mr. Nicolson then briefly traced the experimental work of the Research Laboratory of the Western Electric Co. in relation to piezo-electric phenomena and showed how, starting with the historic experiments upon quartz and tourmaline, the Laboratory had extended their work to include crystals of certain artificial salts. It was necessary, in as much as the phenomena are confined to crystals belonging to rather unsymmetrical classes, to choose artificial salts producing crystals of this type. In this connection the tartrate of sodium and potassium, known as rochelle salt, produced by far the best results. Mr. Nicolson then described the production of these crystals from a nucleus or seed crystal grown by the application of a rapid temperature gradient. He stated that it was necessary to desiccate the crystals by immersing them in alcohol, and brought out the very interesting fact that in the desiccated crystal there is a re-distribution of the electrical charges. The

hour-glass structure of the large rochelle salt crystals has great significance in the electrical disposition of the charges induced by the stress applied. He also discussed at length the electrical charge developed by torsional strain.

After exhibiting a number of diagrammatic lantern slides illustrating the foregoing principles, Mr. Nicolson proceeded to demonstrate the electric properties of rochelle salt crystals subjected to a pressure of about 10 kg. per square cm. When such a crystal was attached to a phonograph needle, the vibrations of the needle, caused by the record, set up piezo-electric impulses, which were readily transmitted thru some 80 pairs of individual telephonic receivers, distributed thruout the audience. The reproduction of various sorts of phonograph records was of exceptional quality.

The electrical effect of torsional stress upon crystals was further demonstrated by a rochelle salt crystal surrounded by diagonally corrugated wrappings. This, used as a telephonic transmitter reproduced the conversations of Mr. Nicolson in an adjoining room in a most striking manner.

At the close of the demonstration a vote of thanks was tendered to Mr. Nicolson for his remarkably interesting paper and also to Mr. R. M. Allen for introducing him to the Club and thus procuring the privilege of the presentation of this unusual and striking demonstration.

After a short discussion the meeting adjourned at 9.30.

HERBERT P. WHITLOCK, *Recording Secretary.*

THE PHILADELPHIA MINERALOGICAL SOCIETY

Wagner Free Institute of Science, June 12, 1919

A stated meeting of The Philadelphia Mineralogical Society was held on the above date with the president, Dr. Leffmann, and later the vice-president, Mr. Trudell, in the chair. Eighteen members and sixteen visitors were present.

Dr. Harry A. Keller addressed the society on "The Platinum Metals." The members of the group were characterized, introductory to a general history of their discovery, and occurrences. Deposits in Colombia and Perm were described. The talk was illustrated with a number of lantern slides of specimens and maps of the localities. The paper was discussed by Messrs. Leffmann and Koch. A vote of thanks was tendered to the speaker.

Mr. Gordon reported the society's excursion to East Bradford township, Cope's Mill and Cope's quarry in Chester County, attended by Messrs. Oldach, Knabe, Frankenfield, and Gordon. No specimens were found.

Messrs. Knabe and Hagey presented an account of the May 30, 31, June 1 excursion to Phoenixville, Robeson, Trap Rock, and Falls of French Creek, attended by Messrs. Hagey, Knabe and Gordon. At Phoenixville, fine cerussite crystals, pyromorphite, wulfenite, anglesite, sphalerite, and galena (argentiferous) were found; at Robeson, stilbite, apophyllite, chabazite, and natrolite; at French Creek, fine groups of pyrite and apophyllite. Mr. Hagey exhibited lantern slides taken on the trip to supplement the specimens shown. Mr. Benge exhibited quartz crystals from Henderson.

On motion the society adjourned until September 11.

SAMUEL G. GORDON, *Secretary.*