

4. After the protective lacquer has dried sufficiently, which will be in a few minutes, especially if the drying is assisted by a little heat, take up the section by means of the magnet, with the surface to be etched outward. Holding the section with the magnet, immerse the section in the etching fluid to a depth not greater than is necessary to cover the entire surface to be etched, and accompany the immersion with a slight rocking motion in order to release bubbles of air that usually form on the immersed surface and interfere with the etching. At intervals of a few seconds, turn up the etching surface for examination, occasionally washing or rubbing off the surface in order to observe the progress of the etching. Usually in less than two minutes the etching figures will be seen to have reached their maximum brilliancy, and the etching should be discontinued. If etched too long, the iron will darken.

5. Sponge and wash thoroly the etched surface and immerse the section for a few seconds in the lime water previously provided.

6. Again wash the section and dry it as thoroly as possible with the dry cloths.

7. Lacquer the etched surface, and give the section a final thoro drying by gentle heat.

PROCEEDINGS OF SOCIETIES

THE PHILADELPHIA MINERALOGICAL SOCIETY

Wagner Free Institute of Science, January 8, 1920

A stated meeting of The Philadelphia Mineralogical Society was held on the above date with the president, Dr. Burgin, in the chair. Sixteen members and four visitors were present. Dr. Alfred C. Hawkins, Wilmington, Delaware, was elected to active membership.

Dr. Hawkins addressed the society on "Mineralogical Experiences" at a number of localities in Rhode Island, New York, New Jersey, Oklahoma Texas and Missouri, illustrated with lantern slides and specimens.

Mr. Trudell announced the formation of The Mineralogical Society of America, and the taking over of THE AMERICAN MINERALOGIST by the new society.

SAMUEL G. GORDON, *Secretary.*

NEW YORK MINERALOGICAL CLUB

January 14, 1920

The Regular Monthly Meeting of the New York Mineralogical Club was held in the American Museum of Natural History on the evening of Wednesday, January 14, at 8.15 P.M. The President, Dr. George F. Kunz, presided and there was an attendance of 28 members. Mr. William Maurer, of 630 84th St., Brooklyn, was elected to membership.

The discussion for the meeting, Quartz and mineral inclusions in quartz, was then introduced by the Chair, who called upon members to show specimens of interest illustrating this topic. Mr. Ashby exhibited specimens of capped quartz from a number of localities including one with 4 caps, one of them removable, from Schlaggenwald, Bohemia; specimens illustrating Babel quartz and unusual terminations, as well as some examples of inclusions.

Capt. Miller discussed the physical properties of quartz, dwelling particularly on the origin of the colored varieties, blue, violet and pink quartz and cited recent authorities to the effect that some of these colors are due to small percentages of manganese oxide. He also discussed pyro-electric phenomena, etching-figures, and the effects obtained by ultra-violet light.

Mr. Whitlock exhibited a diagram explaining the twinning laws of quartz, and models illustrating right and left crystals and twinning habits. He also showed characteristic examples of twinned intergrowths, parallel position intergrowths with a marked tendency toward skeleton crystals, and a remarkable example of multiple phantoms.

Mr. Wintringham explained by means of blackboard diagrams right and left handed crystals of quartz, and showed a curiously distorted crystal. Mr. Manchester spoke of quartz including pyrrhotite crystals from King's Bridge. Dr. Kunz exhibited a particularly fine quartz phantom from Madagascar, and discussed quartz inclusions. Miss Luther showed a handsome suite of cut quartz illustrating the applications to jewelry.

HERBERT P. WHITLOCK, *Recording Secretary*

NOTES AND NEWS

Dr. Waldemar T. Schaller has resigned from the U. S. Geological Survey and Mr. Harry F. Gardner from the New York State Museum, both to enter industrial work.

ABSTRACTS—CRYSTALLOGRAPHY

THE ARRANGEMENT OF ELECTRONS IN ATOMS AND MOLECULES. IRVING LANGMUIR. *Gen. Elec. Co. J. Am. Chem. Soc.*, **41** (6), 868-934, 1919.

Chemical evidence indicates that the electrons in the atom (at least the outermost ones) are essentially stationary. In some simple atoms, such as those of the inert gases, the electrons are arranged in pairs symmetrically placed about the equatorial plane, so that the symmetry is holohedral tetragonal. By considering the properties and behaviors of atoms of various elements, it is possible to work out probable electron arrangements for a number of them. The tendency for electrons to form groups of 8, or octets, is marked, and the valence of many elements can be accounted for in this way. The constitution of organic, simple inorganic, and complex inorganic compounds can be worked out on this basis. [The original contains a vast amount of additional data.]

E.T.W.

ISOMORPHISM, ISOSTERISM, AND COVALENCE. IRVING LANGMUIR. *J. Am. Chem. Soc.*, **41** (10), 1543-1559, 1919.

That the valence of the chemical elements is related to the electrons in their atoms has been demonstrated by many recent investigations; and