to be impossible. This may be regarded as a substantiation of, and independent evidence for, the theory of the existence of ions in crystals, though not necessarily a proof of it. The successful correlations also have the nature of a partial check on the correctness of the crystal structures considered.

WRITER'S NOTE: This paper was presented in May, 1929, before an informal gathering of Harvard and Massachusetts Institute of Technology physicists and mineralogists interested in crystal structure. At that time, Dr. Hans Müller, Assistant Professor of Physics at the Massachusetts Institute of Technology, evinced a considerable interest in the relation between gliding and polarizability. He informed the writer that this relation would be amenable to a mathematical demonstration. Since then, Dr. Müller has investigated the subject from this viewpoint, and the results of his study, bearing out the writer's correlations in very exact form, will appear in an early number of this Journal.

NOTES AND NEWS

EUHEDRAL MAGNESITE CRYSTALS FROM WINKLER COUNTY, TEXAS

JOHN T. LONSDALE, *A. & M. College of Texas.*

The magnesite crystals described in this paper were obtained from drill cores from wells of the Southern Crude Oil Purchasing Company. Most of the material studied came from the company's Well 89-E-1, located 2310 feet from the east line and 330 feet from the north line of Section 40, Block B-5, Winkler County, Texas. Additional specimens came from a nearby well the exact location of which is not known. The core from Well 89-E-1 was taken at 2690 feet, the formation being Permian and known as the "white lime". The core from the nearby well is believed to have been taken at a level several hundred feet higher, from the "brown lime", a higher Permian formation. The specimens were submitted to the writer by A. L. Ackers and E. M. Hawtof of the geological staff of the company.

Euhedral magnesite crystals are not common. Austin F. Rogers has described crystals from San Jose, California, and Lillian M. Dobbel crystals from Orangedale, Nova Scotia.[1] There are only a few additional occurrences of crystals from the whole world and textbooks of mineralogy contain very few data on the crystallography of the mineral. The rarity of the crystals and the fact that those from Winkler County are different crystallographically from the other North American occurrences accounts for the present note.

The magnesite crystals occur disseminated through fragments of the well cores mentioned above. They appear much as phenocrysts in an aphanitic igneous rock. The matrix is a dolomitic limestone containing chert or flint nodules. Many of the magnesite crystals are stained with petroleum or asphalt. The crystals have originated by replacement of the dolomite by magnesium bearing solutions.

The crystals measure from about 1 mm. up to about 5 mm. in length. They

[1] Rogers, Austin F., Euhedral Magnesite Crystals from San Jose, California: *American Mineralogist*, Vol. **8**, pp. 138–140, 1923. Dobbel, Lillian M., Magnesite Crystals from Orangedale, Nova Scotia: *American Mineralogist*, Vol. **8**, pp. 223–228, 1923.

were separated from the matrix by digestion in dilute hydrochloric acid with the result that the crystal faces were dimmed and in some instances destroyed. Relatively few crystals with good terminations were obtained because of this fact. The dominant forms and the only ones definitely recognized on the crystals are a prism terminated by a rhombohedron. Some crystals apparently tapering at both ends suggested a steep scalenohedron and others a pinacoid but neither of these forms are certain. The crystals examined by Rogers have a scalenohedron, prism and pinacoid as the dominant forms and those described by Miss Dobbel show a prism and pinacoid as dominant forms with minor development of rhombohedron and scalenohedron. The Winkler County crystals are therefore distinctly different in habit since they commonly show a prism terminated by a rhombohedron. The angle of the rhombohedron was measured on the stage of a petrographic microscope from fragments of the mineral and from thin sections. The average of several measurements gave 72° 48′ which is close to the value usually given for magnesite.

A number of the crystals were analyzed by P. J. A. Zeller, of the Texas Engineering Experiment Station with the result given below:

MgO	47.24
CaO	1.47
FeO	1.67
CO_2	49.49
	99.87

In this analysis the crystals were dissolved in hydrochloric acid so that the result represents only soluble material. There was left a small amount of insoluble material derived from minute inclusions in the mineral. Thin sections revealed a very small amount of iron oxide some of which may have gone into solution furnishing at least part of the iron of the analysis.

The indices of refraction obtainable from a cleavage of the mineral are $1.595 \pm .003$ and $1.72 \pm .005$, the latter being ω, the former a value intermediate between ω and ϵ diagnostic for magnesite of the composition shown in the analysis.

Dr. Victor M. Goldschmidt, professor of mineralogy and crystallography at the University of Göttingen, gave a number of lectures on chemical geology at the University of London.

Dr. William F. Foshag of the Smithsonian Institution and the U. S. National Museum gave a series of lectures at Princeton University on the "Ore Deposits of Mexico". One lecture was also given on the "Saline Deposits of the Western United States".

The Smithsonian Institution has announced the gift of a perfect sphere of flawless rock crystal, believed to be the largest in the world. Mrs. Worcester Reed Warner gave the gift as a memorial to her late husband whose achievements were largely in the manufacture of astronomical instruments made from quartz. The crystal ball measures 12⅞ in. in diameter and weighs 106¾ pounds. The block of quartz from which the ball was cut is said to have come from Burma and must

have weighed over 1000 pounds. It was cut in China and polished in Japan. The ball is now the property of the United States National Museum.

A second impression of the well known work "Petrographic Methods" by Arthur Holmes has recently been issued by Thomas Murby & Co., London. It was reprinted by the phototype process and because of this fact can be offered at a great reduction in price compared with the first edition. The cost of the first edition was 31/6d, while that of the second is only 15/–.

A new method of imbedding extremely fine mineral particles or ore samples in bakelite in preparation for microscopic study is described by R. E. Head and Morris Slavin in Technical Paper No. 10 of the United States Bureau of Mines. The twelve page pamphlet is entitled "A New Development in the Preparation of Briquetted Mineral Grains" and can be purchased from the Bureau for 15 cents.

Dr. E. L. Bruce, Miller Memorial Professor of Geology at Queen's University, Kingston, Canada, sailed on May 23rd to spend the summer chiefly in Finland.

PROCEEDINGS OF SOCIETIES

NEW YORK MINERALOGICAL CLUB

Minutes of the March Meeting.

A regular monthly meeting of the *New York Mineralogical Club* was called to order by President Herbert P. Whitlock at the American Museum of Natural History on the evening of March 19, 1930, with an attendance of 56.

Mr. John T. Gordon and Miss Gwynne Richards of New York City were elected to membership.

Dr. Kunz exhibited an unusually long (38 cms.) tapering crystal of colorless quartz from Brazil, and Mr. Grenzig showed a large "half-breed" of crystallized copper and silver from the Lake Superior district.

The speaker of the evening was Dr. W. F. Foshag, of the U. S. National Museum, who addressed the Club on "*Collecting Minerals in Mexico.*"

The rocks of Mexico are principally limestone of Comanchian and Cretaceous age, which are overlain in places by Tertiary lava flows, and underlain by granites. Most of the ore deposits (chiefly copper, silver, lead, and zinc ores) occur along faults in the central plateau region, and may be classified as veins, replacements in limestone, contact metamorphic deposits, and others. The replacements in limestone furnish the most constant supply of good mineral specimens.

The speaker described in detail a number of localities which he visited on a collecting trip a few years ago. Unusually fine specimens of wulfenite (with pyramidal habit), cerussite, anglesite, vanadinite, descloizite, pyrrhotite, gypsum (crystals up to six feet in length), hillebrandite, spurrite, and other minerals were obtained on this expedition. The places visited were illustrated by a large number of excellent lantern slides.

HORACE R. BLANK, *Secretary*

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences, Philadelphia, March 6th, 1930

A stated meeting of the *Philadelphia Mineralogical Society* was held on the above date, Mr. Toothaker presiding. Upon favorable recommendation of the Council, Dr. Leopold Pessel was elected a member of the Society.