

This analysis shows the mineral to be normal chrysotile. The somewhat high water content is probably due to adsorption through washing.

There has been much discussion regarding the origin of chrysotile and two general hypotheses have been proposed not only to account for the formation of the mineral but of its characteristic fibrous structure as well. The first hypothesis is that the chrysotile grew by pushing apart the inclosing walls and that the fibrous nature is due to the introduction of the chrysotile bearing solutions through numerous closely spaced pores. The second theory is that the chrysotile is a result of the replacement of the wall rock. Without entering into a discussion of the relative merits of these two ideas it may be pointed out that the Franklin Furnace mineral, because of its radiated structure, can most reasonably be considered as a replacement of the inclosing calcite; and that the fibrous structure is not due to any vagaries of deposition from solution, but is a property inherent in the mineral itself. The *normal* cleavage habit of chrysotile is fibrous.

PROCEEDINGS OF SOCIETIES

NEW YORK MINERALOGICAL CLUB

Regular Monthly Meeting of May 13, 1925

At a regular monthly meeting of the New York Mineralogical Club held in the Morgan Memorial Hall of the American Museum of Natural History, on the evening of May 13, the Gratacap Memorial Tablet was formally presented to the Museum by the Club and unveiled.

Dr. George F. Kunz, President of the Club, made the presentation address. President Henry Fairfield Osborn accepted the tablet on behalf of the Trustees of the Museum. The Rev. Henry Mottet, a classmate of Doctor Gratacap, spoke eloquently of his personality and magnetism. Mr. Lewis Sayre Burchard, praised his gifts as a writer and a public speaker. Mr. George C. Lay, outlined the Gratacap ancestry and told of his theological studies. Mr. Joseph L. Bittenwieser, President of the Alumni Association of the City College, spoke of his interest in his Alma Mater and her graduates.

Mr. Gilman S. Stanton, speaking in behalf of the Mineralogical Club, related instances of his interest in and inspiration extended to boy students and collectors. Mr. Herbert P. Whitlock, who succeeded him as Curator of Mineralogy in the American Museum, spoke with great appreciation of the work of Louis Pope Gratacap as a curator.

The members of the Club present and the friends and former associates of Dr. Gratacap then viewed the memorial tablet which has been placed upon the north wall of the Morgan Memorial Hall, and is carved in light buff marble, harmonizing with the general color of the Hall. It bears a portrait of Dr. Gratacap, by Albert T. Stewart over the following inscription:

In memory of Louis Pope Gratacap,
 Scientist, Author, Educator, for
 forty-one years in charge of the
 Minerals of this Museum, and for
 sixteen years Curator. Erected by
 the New York Mineralogical Club.

In an upright case, in close proximity to the tablet, was displayed a selection from the published and manuscript works of Dr. Gratacap, assembled by the Mineralogy Department of the Museum.

HERBERT P. WHITLOCK, *Recording Secretary*

Regular Monthly Meeting of October 21, 1925

A regular monthly meeting of the New York Mineralogical Club was held in the East Assembly Room of the American Museum of Natural History on the evening of October 21, 1925. The President, Dr. George F. Kunz, presided and there was an attendance of thirty-one members.

The following names were submitted for membership to the committee on membership:

Mr. Edward A. Zimmerman,	128 Convent Ave., N. Y. City
Dr. G. Winslow Plummer,	321 West 101 St., N. Y. City
Mr. Arthur J. Erregir,	595 Prospect Ave., Bronx, N. Y. City
Mr. Donald Selchow,	Yale University, New Haven, Conn.
Mr. Edward E. Schmidt,	267 Bloomfield Ave., Verona, N. J.

The secretary called to the attention of the Club the death, during the summer, of Mr. Joseph P. Wintringham, and read a resolution which was passed and a copy ordered transmitted to Mrs. Wintringham. The resolution follows:

The members of the New York Mineralogical Club, at a meeting held on October 21, unanimously joined in expressing their grief at the recent loss of their fellow member, Mr. Joseph P. Wintringham, and extend their sincere sympathy to you in your great sorrow. The following minute has been placed upon the records of the Club:

By the recent death of Mr. Joseph P. Wintringham, for many years associated with us as an enthusiastic and valued member of this Club, our organization has suffered a severe loss and we, individually and collectively feel a keen personal sorrow.

Mr. Wintringham combined in his personality a clear and logical mind with a sympathetic and modest demeanor. His opinions were always timely and constructive. The loss of a man of such sterling qualities always means much to the world at large; to us who knew and appreciated his rare gifts it means far more.

Mr. Grenzig called attention to the recent death of Mr. William G. Rothe and spoke of his association with the Club as a former enthusiastic member. The President named the following committee to draw up a suitable resolution on the death of Mr. Rothe: Messrs. Stanton, Grenzig and Ashby.

Mr. Broadwell exhibited a series of minerals including stilbite from Pennington, N. J., barite from the Hopewell Barite mine, a number of minerals associated with the serpentine from Green Swamps Dam, and epidote and crocidolite from Ringwood, New Jersey.

Mr. Manchester displayed some fine quality rose quartz from the new Kinkle Quarry at Bedford, New York, and an interesting series from Snake Hill and Paterson, New Jersey. Mr. Grenzig showed some West Paterson minerals including prehnite incrusting calcite and barite, thomsonite, analcite and calcite; also calcite from Snake Hill, New Jersey.

Dr. Allen spoke of a trip to the recently discovered ledge of fossils in Saratoga County, New York. Mr. Walther exhibited pink, yellow and white botryoidal prehnite and crystallized barite from West Paterson, calcite showing gliding planes from the Parker Mine, Franklin, and altered spinel. Mr. Hoadley described an interesting trip with Mr. Scheerer to the Haddam localities where chrysoberyl and pink muscovite were obtained, also a visit to the nearby iolite locality. He also announced his rediscovery of the corundum locality at Black Horse, Pennsylvania, from which locality he obtained specimens. Among Mr. Hoadley's collection from Franklin was a type specimen of schallerite, margarosanite, rhodonite and garnet. He announced the fact that the Tilly Foster locality was closed to collectors. He spoke of the Waterbury aqueduct locality for zeolites.

Mr. William L. Clark exhibited muscovite with long included crystals of tourmaline obtained from the excavation for the New Medical Center at Fort Washington Avenue and 168th Street. He presented this specimen to the Club's Collection.

The Election Day Field Trip was discussed and a committee consisting of Messrs. Hoadley, Radu and Broadwell was appointed to arrange if possible a trip to the West Paterson Quarries. The meeting then adjourned.

HERBERT P. WHITLOCK, *Recording Secretary*

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences of Philadelphia, Nov. 12, 1925

A stated meeting of the Philadelphia Mineralogical Society was held on the above date, with an attendance of twenty-nine members and ten visitors. President Vaux was in the chair.

Mr. Horace Fletcher, Jr., was elected to membership, and Mr. Ferdinand K. Ettinger to junior membership.

Dr. W. T. Schaller, of the U. S. Geological Survey, Washington, D. C., addressed the society on "*How Pegmatites Form*," and presented his view, recently published in the *American Journal of Science*, of the origin of the pegmatite minerals by replacement from aqueous solutions. From his studies of the California pegmatites he has concluded that most of the minerals to which they now owe their importance were not formed by direct crystallization from a molten magma, but that after solidification the original dike was greatly altered by invading solutions, which acted slowly over a long period of time. These solutions dissolved some minerals and deposited others, so that comparatively few of the large number of minerals now observed in the dikes can be considered as having been present originally.

The speaker showed, with the aid of a series of excellent lantern slides and several large specimens, that the California pegmatites were composed entirely of graphic granite at some stage in their history, and that the characteristic arrangement of the quartz crystals in the graphic granite can still be plainly traced through those

parts of the dikes which now consist chiefly of albite and garnets. The microcline of the graphic granite was probably first replaced by albite, and the albite later by tourmaline, garnet, muscovite, lepidolite, and other minerals. Residual microcline crystals, often much corroded, are found all through the dikes. The extent of the replacement varies considerably for different dikes.

The theory raises many interesting questions as to the origin of minerals. Perhaps all albite and all hydrous minerals are always formed by replacement processes. Dr. Schaller's talk was followed by a very interesting discussion of the subject, in which several members of the society participated.

Mr. Samuel G. Gordon then presented in abstract a paper entitled *Penroskite and Trudellite, two new minerals*. Their characters are:

PENROSKITE, $5(\text{Ni},\text{Co})\text{Se}_2 \cdot 2\text{PbSe}_2 \cdot 3\text{CuSe}$; orthorhombic. Color lead-gray; streak black; luster metallic; opaque; hardness 3; brittle; specific gravity 6.93. Form: radiating masses, with four cleavages: c (001), perfect but curved; a (100), and b (010), perfect, and m (110) distinct. Mineralography: cream colored; HNO_3 effervesces, rapidly etching to a rough gray surface, fumes tarnish brown; HCl negative; KCN tarnishes brownish, rubs paler; FeCl_3 and HgCl_2 negative. An analysis by Dr. J. E. Whitfield gave: Se 59.80, Ag 2.04, Pb 17.13, Cu 7.84, Ni 11.14, Co 1.34, Fe_2O_3 1.08 = 100.37. Locality: Colquechaca, Bolivia.

TRUDELITE, $\text{Al}_2(\text{SO}_4)_3 \cdot 4\text{AlCl}_3 \cdot 4\text{Al}(\text{OH})_3 \cdot 30\text{H}_2\text{O}$; trigonal. Color amber-yellow (Ridgway); luster vitreous; translucent; hardness, 2.5; specific gravity 1.93. Form: massive, with an indistinct rhombohedral cleavage. Optically uniaxial, negative: $\epsilon = 1.495$, $\omega = 1.560$; $\omega - \epsilon = 0.065$. The mineral is extremely deliquescent. An analysis by Mr. Earl V. Shannon gave: SiO_2 0.57, Al_2O_3 25.67, Fe_2O_3 1.00, CaO 1.56, MgO 0.66, Na_2O 1.58, SO_3 13.60, Cl 24.42, H_2O 36.60, = 105.66; less $\text{O} = 2\text{Cl}$ 5.49, = 100.17. Locality: Cerro Pintados, Tarapaca, Chile.

The latter mineral was named after Mr. Harry W. Trudell, formerly business manager of THE AMERICAN MINERALOGIST, who was present and who received the announcement with considerable surprise. He was presented with a specimen.

Mr. Cienkowski reported trips to several Pennsylvania and New Jersey localities. After a vote of thanks to Dr. Schaller the meeting adjourned.

HORACE R. BLANK, *Secretary*

Academy of Natural Sciences of Philadelphia, December 10, 1925

A stated meeting of the Philadelphia Mineralogical Society, attended by thirty-six members and seven visitors, was held on the above date, with the president, Mr. Vaux, in the chair. Mr. Robert Goetz, of Philadelphia, was elected a junior member.

The speaker of the evening was Mr. Samuel G. Gordon, of the Academy of Natural Sciences of Philadelphia, who described his recent experiences on *The Third Academy Mineralogical Expedition, Bolivia, 1925*. After a steamship trip from New York to the west coast of South America, he entered Bolivia by rail from Arica, Chile. The most important mine visited was that at Llallagua, Bolivia, where a three weeks visit yielded many fine specimens of cassiterite, wavellite, vivianite, vauxite, and paravauxite. The thrills of collecting in this mine, with its fifty miles of tunnels and almost total absence of safety devices, were dwelt upon

at length. At the silver mines of Colquechaca, reached by mule from Llallagua, the new mineral penroseite was found. At various other mines in Bolivia excellent specimens of tealite, cylindrite, wolframite, and other minerals were secured. The speaker travelled by railroad, auto, mule, and even by aerial tramway between the various localities.

Continuing southward into Chile, the speaker collected minerals in the nitrate districts on the Atacama desert, in spite of an incipient revolution which was brewing at the time. Trudellite, a new mineral, and tamarugite were the most interesting finds in this region, and Cerro Pintados and Copiapo the best localities. The return voyage was made from Valparaiso.

The talk was illustrated throughout by many lantern slides, the splendid views of the mountain scenery in the Andes being particularly appreciated by the audience.

HORACE R. BLANK, *Secretary*

NEWARK MINERALOGICAL SOCIETY

The seventy-sixth regular meeting of the Newark Mineralogical Society was held on November 1, with President Miller presiding. Twenty-three members were present.

The annual session was opened by the re-election of all the present officers; President: Thos. I. Miller; Vice-President: Geo. F. Black; Secretary: Wm. H. Broadwell; Treasurer: H. M. Lehman. The treasurer reported a balance of cash on hand of \$20.65. The secretary reported an increase in membership during the year of fourteen making a total of fifty-nine as the present membership. Three applications were acted upon and three more were received and turned over to the membership committee.

Mr. O. Ivan Lee then gave an interesting lecture on his recent trip through North Carolina where he visited many well known localities. He exhibited a large number of specimens collected on this trip. At its conclusion a vote of thanks was tendered him and adjournment followed.

WM. H. BROADWELL, *Secretary*

The seventy-seventh meeting of the Newark Mineralogical Society was opened in the auditorium at 3:30 P.M., December 6, by President Miller who introduced the speaker of the day, Dr. M. W. Twitchell, Assistant State Geologist, who gave an illustrated lecture on *The Geological Story of New Jersey*. Upon its conclusion the members adjourned to the Hotel St. Francis for a dinner in honor of the Society's tenth anniversary.

Of the thirteen charter members, eight are still members, one has been made an honorary member; two have died; three have resigned. Of the eight original members six are still active in the affairs of the Club. Of the original officers, Wm. H. Broadwell has held the office of secretary and H. M. Lehman the office of treasurer continuously for the period of ten years. Starting with thirteen members the Club has grown to the present membership of fifty-nine. The Society was organized in 1915 and incorporated in 1925.

WM. H. BROADWELL, *Secretary*