NOTE ON RÖMERITE

C. W. Wolfe, *Harvard University, Cambridge, Mass.*

In the paper on the "Reorientation of Römerite" (*Am. Mineral.*, vol. **22,** pp. 736–741, 1937), a misprint in the transformation formula, Goldschmidt to "Normal Setting," p. 740, was overlooked. Instead of $0\bar{1}0/\bar{1}00/00\bar{1}$, the formula should read $0\bar{1}0/\bar{1}10/00\bar{1}$.

Through an oversight, the study of Robert E. Landon on Römerite (*Am. Mineral.*, vol. **12,** pp. 279–283, 1927), was not mentioned. Landon retains Goldschmidt's setting, and his form list may be transformed to the "normal setting" by the above corrected formula. Two of his three new forms $(120)=(2\bar{1}0)$ and $(2\bar{1}0)=(1\bar{3}0)$ have been observed by Ungemach and are included in the angle table, but the third new form $(4\bar{1}0)=(1\bar{5}0)$ has not been observed elsewhere. As his observed value for φ and the calculated value differ by about 3° and as there has been but one observation, the form must be listed as rare or uncertain, and need not be included in the angle table.

PROCEEDINGS OF SOCIETIES

NEW YORK MINERALOGICAL CLUB

The American Museum of Natural History, New York City, May 18, 1938.

The meeting was called to order by 1st Vice-President Andersen at 8:15 P.M. Sixty-five (65) members and guests were present.

The death of Frederick I. Allen, a very distinguished member of the Club, was announced.

The Field Trip Committee reported a successful field trip to Easton, Pennsylvania, and the plans for a trip to Bedford, New York, on May 29th.

1st Vice-President Andersen then presented the speaker of the evening, Mr. Harry R. Lee, who spoke on *Mineralogy and the Blowpipe Art.*

Mr. Lee, who is an officer of the Club and a research metallurgist, touched successively on the history of the blowpipe art, the present interest in blowpipe methods, blowpipe equipment and its uses, and typical blowpipe tests in the determination of minerals. He also stressed the determinative characters aside from the blowpipe, the necessity of a determinative scheme, the advantages and limitations of the blowpipe and the future of the art in mineral determination. The speaker reviewed the contributions made first in Sweden and then in Germany, by the distinguished chemists and mineralogists who adapted the blowpipe to those sciences and developed the appropriate equipment, reagents and methods, all now well-known and still in use.

The earliest reference to the scientific use of the blowpipe in Europe is found in a pamphlet on Iceland spar, published in Latin in 1670, by a German, Erasmus Bartholin, who mentioned that the mineral proved capable of calcination to lime by the blowpipe flame. In the "Experimental Glassblowing Art," also in Latin, and dated 1679, another German, J. Kunckel, suggested that the glassworker's blowpipe could serve the chemist in the reduction of metallic oxides on charcoal. In "Elements of the Testing Art," again in Latin, and issued in 1739, still another German, Johann Andreas Cramer, described a blowpipe of copper tubing, fitted with a hollow sphere for retention of moisture from the breath of the operator, and suitable for the fusion of small beads of metallic or other materials.

From 1740 well into the 19th Century all the recorded development of the blowpipe art took place in Sweden, where a succession of distinguished men made it the basis for the remarkable advances in mineralogy and chemistry for which that country and the period are famous. In 1738 Anton Schwab, of the Swedish Bureau of Mines, first applied the art to the testing of ores, but he left no written record. Cronstedt, who used the blowpipe chiefly to identify the elements in minerals, was first to recognize that borax, sodium phosphate and soda are distinctively colored by many of the oxides when dissolved in these fluxes. He, furthermore, standardized the essential equipment and reagents, constructed the first portable kit, and called it the "pocket laboratory." In a book published in 1770, Engestrom collated the mineralogical researches of Cronstedt, and added an introduction to blowpipe analysis—the first comprehensive description of the art. Bergmann, professor of chemistry at the University of Upsala, checked and broadened the methods of Cronstedt, improved the form of the instrument, and in 1779 published all methods in a "Commentary on the Blowpipe." In 1784 Scheele announced the operating difference between the oxidizing and reducing flames. However, publication was soon again outstripped by the accomplishments of Gahn, whose distinguished work laid the basis for use of the blowpipe in chemistry and mineralogy. In addition to his remarkable skill Gahn employed the platinum wire as a support, cobalt nitrate as a coloring reagent, and soda for reduction of oxides. Inasmuch as he published nothing, preservation of the methods and results is due to his pupil Berzelius, who in 1812 made them a section of the first edition of his "Textbook of Chemistry." Pursuing the art with enthusiasm and affection, Berzelius in 1820 published the famous monograph entitled "Use of the Blowpipe in Chemistry and Mineralogy," which appeared in four German editions and was elsewhere widely translated.

Long before the book of Berzelius had appeared in German, the blowpipe had figured prominently in mineralogical, metallurgical and chemical instruction at the famous Mining Academy in Freiberg, Saxony. The new textbook assisted instruction, and stimulated research by Plattner and Harkort, who were students and contemporary teachers at Freiberg. Harkort adapted the silver assay method to the reduced scale that the blowpipe permits, and in 1827 he announced the new method in a monograph entitled "The Art of Assaying with the Blowpipe." Within the next 20 years Plattner had adapted to blowpipe methods furnace assays for gold, copper, lead, bismuth and tin, and had devised a method for the successive assay of iron, cobalt, nickel, copper, silver and gold from a single specimen of cobalt-nickel speiss, then smelted nearby. In the same decade Bunsen, who was a chemist rather than mineralogist, devised and published his methods for the detection of elements by their coloration of the Bunsen flame. Of more importance, Bunsen devised a blowpipe method for volatilizing elements and compounds and condensing them as films, such as certain oxides, sulphides and iodides. Many of these substances are highly colored and strongly characteristic.

The present interest in blowpipe methods rests in their use for the determination of minerals and in the teaching of some of the fundamentals in metallurgy to engineering students, who can readily visualize fusion reactions and other high temperature phenomena that are quickly attainable with the blowpipe.

After a short description of the principal equipment used in blowpipe analysis, the typical tests employed in the determination of minerals were divided into those that use heat with air, and those that utilize flame with fluxes. By metallurgical analogy the closed tube was likened to the muffle furnace, the open tube to the roasting kiln, and the charcoal block to the open hearth.

While the blowpipe art is an important phase of determinative mineralogy, it was pointed out that chemical testing should not be over-emphasized, and an appeal was made for drawing full value from all discernible physical characters of minerals. Determinative characters beyond the blowpipe were shown to be necessary for polymorphic minerals and for those that are chemically similar. The advantages and limitations of blowpipe methods, especially in relation to the chemical composition of minerals, were impartially summarized, and pertinent experiences cited. Finally, the speaker concluded that collegiate instruction in determinative mineralogy shows a strong trend away from the blowpipe and toward entire reliance on physical characters—and regret was implied. Declining to prophesy the future of the blowpipe art, the speaker expressed the hope that it would long survive and that many would use it to widen their present interest and pleasure in the study of mineralogy.

F. H. Pough, *Secretary*

NEW MINERAL NAMES

Bedenite

N. E. Efremov: Bedenite—a new mineral (preliminary information). *Mem. Soc. Russe Mineral.*, 2d ser., vol. **66**, No. 3, pp. 479–485, 1937, 1 fig. English Summary.

Name: From the locality, Beden Mountain, North Caucasus.

Chemical Properties: A silicate of lime, magnesia, iron and alumina: $Ca_2 (Mg, Fe''', Al)_5 . Si_8O_{22}OH$. Analysis: SiO_2 55.15, Fe_2O_3 7.18, Al_2O_3 4.66, MnO, FeO, tr., CaO 13.00, MgO 19.09, H_2O+1.60, H_2O-0.10. Sum 100.78.

Physical and Optical Properties: Color pale gray. Not pleochroic. Luster silky. Biaxial, negative. 2V large. $\alpha=1.634$, $\gamma=1.638$. Plane of the optical axes parallel to the fibers. Extinction parallel.

Occurrence: Found as a white, asbestos-like mineral in a vein of plagioaplite in serpentine, in the region of the Vlasenkov ravine, Beden Mountain, North Caucasus.

Relationship: Bedenite is a rhombic amphibole belonging to the anthophyllite series.

W. F. Foshag