NOTES AND NEWS

STUDIES IN THE MICA GROUP (A DISCUSSION)

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In a recent contribution to *The American Mineralogist* Professor Winchell[1] justifies his revised theory of the micas on the ground of the plausibility of a substitution in which the volume is unaltered, and concludes "the same theory [of Hallimond] . . . . is not in harmony with the modern analytical data on the composition of the micas of the muscovite series."

In their commonly accepted meaning the latter words appear to be incorrect. Reference to Professor Winchell's own diagram (*l.c.* p. 54) will show that the plotted data lie considerably nearer to the horizontal line required by my own theory than to the inclined line which he suggests. The mean difference of the potash values from my theory ($K_2O=100$) is $+1.1$ units, while the mean difference from the diminishing values required by Winchell's theory is no less than $+6.7$ units. These figures are directly at variance with the above statement by Winchell. The fact is that if the Kunitz analyses are to be brought into agreement with Winchell's theory the percentage of potash must be regarded as averaging about 0.7 per cent too high. This is a heavy correction, to which Winchell makes no reference whatever, though he has experienced similar difficulties in the earlier discussion of his theories. If 0.7 per cent is a fair estimate of the error possible in recent analyses we need look no further for a cause of the apparent deviations from the simple value $K_2O=100$. Any small real deviations that may underlie the published data will be completely submerged by the admitted experimental error.

In his amended theory Winchell adopts[2] my conclusion that in muscovite $RO+R_2O_3$ is constant. Even if, as he suggests, the substituent group is really $RO\cdot SiO_2$ instead of RO (and it is clear that the corresponding difference in composition hardly exceeds the limits of experimental error in analysis), there is still no difficulty in writing $RO\cdot SiO_2$ as a divalent group resembling "basic" Al_2O_3. The essential features of my theory (namely that the micas may be regarded as salts of hexa- (tri-) silicic acid with potassium and "basic" alumina as common bases) are not affected, indeed they have not yet been discussed at all by Winchell, though his original formulae have been withdrawn and others substituted embodying the replacement RO/R_2O_3.

Turning to the theoretical bases of Winchell's proposed formulae, the whole matter has been discussed by Wyckoff[3] who remarks "the results of crystal analysis do not, however, justify that extension of this idea which finds in this equality of interatomic distances the primary cause and principal determining factor of isomorphous atomic replacements." The need for a reasonable equality in molecular volume has long been a commonplace, though it must be widely interpreted to include eutropic replacements like K/Cs; but I do not think there is any escape from the necessity of expressing the peculiarities of the mica group by means of a chemical theory, as distinct from Winchell's successive proposals to base formulae on (1)

[1] *Am. Mineral.*, 1928, vol. 13, p. 52.
[2] *Am. Mineral.*, 1927, vol. 12, pp. 267–271.
[3] *Am. Mineral.*, 1923, vol. 8, p. 90.

equality in the total number of atoms, (2) equality in the number of oxygen atoms, and (3) equality of molecular volume.

In conclusion I would enquire what is to become of lepidolite and the dark micas? In a revision of his lepidolite theory we found Winchell pleading[4] "Is it not possible that even in modern analyses the tenor of alkalis is actually a little too low." *Four out of the six analyses then under examination were by Kunitz, whose results we are now being asked to regard as about 0.7 per cent too high!*

The United States National Museum has acquired by purchase for the Roebling Collection a twin crystal of cerussite of exceptional size. It measures $12\times9\times4\frac{1}{2}$ cm., and weighs $1\frac{1}{2}$ kgs. The crystal is triangular in shape and is twinned on the prism *r* (130). It was found in the famous Tsumeb district of South-west Africa.

The next annual meeting of The Mineralogical Society of America will be held in New York City, in conjunction with that of the Geological Society of America and other affiliated Societies. The sessions will start Thursday and continue to Saturday, December 27–29, 1928. The American Association for the Advancement of Science will also meet in New York City at the same time. Sessions will be held at the American Museum of Natural History and at Columbia University.

Dr. Friedrich Becke, professor of mineralogy at the University of Vienna, has been elected a foreign member of the Swedish Academy of Sciences.

Professor Ludwig Milch, director of the Institute of Mineralogy and Petrology at the University of Breslau, died Jan. 5, at the age of 60 years.

The death has recently been announced of Dr. Julius Hirschwald, professor of mineralogy and geology in the University of Berlin, and of Professor Arthur Schoenflies, of the University of Frankfurt, the well known author of "Theorie der Kristallstruktur."

PROCEEDINGS OF SOCIETIES

NEW YORK MINERALOGICAL CLUB

Regular Monthly Meeting of March 21, 1928.

A regular monthly meeting of the New York Mineralogical Club was held in the Academy Room of the American Museum of Natural History on the evening of March 21, at 8:15 P.M. The president, Dr. Paul F. Kerr, presided, and there was an attendance of 42 members.

The Committee on Nominations submitted the following names for officers for the year 1928–29, to be voted on at the annual meeting on April 18th.

President: Herbert P. Whitlock.
Vice-President: Frederick I. Allen
Secretary: Howard R. Blank.
Treasurer: Gilman S. Stanton.

The President introduced the speaker of the evening, Dr. Waldemar T. Schaller of Washington, D. C., who addressed the Club on "*Borate Minerals from the*

[4] *Am. Mineral.*, 1927, vol. 12, p. 277.