But if the temperature of formation were low enough, more or less water might readily become interlayered with the normal mineral molecules, in the direction of the perfect cleavage. The properties of this water should be intermediate between those of water (hydrogen or hydroxyl) held by valence forces in the compound, and those of water held as such by surface forces. The temperature at which the water would escape should be greater than the boiling point of free water yet less than that required to break down the compound. Its presence should render the molecules more susceptible to attack by reagents. Its escape would result only in a slight shrinking together, in the pinacoidal direction, of the solid layers and hence should not produce any marked change in optical properties. These features are shown so definitely by the two talcs here studied, that their excess water is considered to be thus held, i. e., by electrostatic attraction between the mineral layers in the cleavage direction. The new mineral "gavite" as well as the long known mineral "picrosmine," are so analogous in composition to the talcs described above as to leave no doubt that they are similar, and as such do not deserve the rank of distinct mineral species. It is therefore suggested that these two names be dropped and that these minerals be included under the species talc.

NOTE ON GARNET FROM A PEGMATITE IN IDAHO[1]

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While studying black sands from the Idaho gold placer mines the writer recognized that the garnet occurring in these concentrates was of two kinds, distinguished by a pronounced difference in color. The first of these, which is brown red in color was called almandite. The other garnet is rose red in color and in a recent publication it was stated that this was probably a magnesian variety high in the pyrope molecule, and perhaps derived from basic magnesian metamorphic rocks. This idea was a result of the writer's observation of a garnet of similar color and appearance in an amphibolite schist derived from large diabase sills in the Avery Quadrangle in the Northern part of the state. A number of specimens of garnet in matrix from Idaho have since been examined and it seems that this rose colored garnet is the

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[1] Published by permission of the Secretary of the Smithsonian Instutution.

commonly occurring garnet in the pegmatites which are connected with the great granitic batholith of central Idaho. As contrasted with the metamorphic garnets of the amphibolites these are all notably manganiferous, and measurements of refractive index seem to indicate the essential identity of the garnet in pegmatites from widely separated localities with each other and with the garnet of similar color in the heavy sands.

As typical of these pegmatite occurrences of rose colored garnet there was selected a specimen (Cat. U. S. N. M. 91, 223) from the Luella mica mine near Avon, Latah County which was received from Dean Francis A. Thompson of the Idaho State School of Mines through Mr. Frank L. Hess. Mr. Thompson states that the garnet is typical of that occurring in the mica bearing pegmatites of that area. The specimen consists of coarse-grained pegmatite containing muscovite, feldspar, quartz and abundant black tourmaline in addition to the garnet. The garnet is purplish rose-red in color and is much traversed by cracks which render it friable, granular and somewhat opaque. It forms grains or imperfect trapezohedral crystals up to 1 cm. in diameter imbedded in quartz or in mica, the most perfect crystals being those which are surrounded by muscovite. There is no flattening of the garnet crystals between the laminae of mica.

A sample carefully selected and purified by the use of an electromagnet and heavy solutions was analyzed yielding the results and ratios given below:

ANALYSIS AND RATIOS OF GARNET FROM IDAHO

CONSTITUENTS	PER CENT		RATIOS	
SiO_2	35.84	.5944	59.44	1.00×3
Al_2O_3	21.20	.2074	20.91	1.06×1
Fe_2O_3	.28	.0017		
CaO	trace			
FeO	27.84	.3875	61.53	1.04×3
MnO	14.33	.2020		
MgO	1.04	.0258		
Total	100.53			

These ratios yield the garnet formula, $3RO.R_2O_3.3SiO_2$. The small amount of ferric iron cannot be present as the andradite molecule ($Ca_3Fe_2(SiO_4)_3$) which is the only recognized molecule containing iron in the trivalent state as the amount of lime required (0.29%) does not occur in the mineral. Grouping the ferric iron with the alumina in the almandite molecule the garnet has the following molecular and percentage compositions:

	MOLECULAR RATIO	WEIGHT PER CENT.
Almandite	1292	63.61
Spessartite	673	32.95
Pyrope	86	3.44
TOTAL	2051	100.00

The measured index of refraction of the analyzed powder is 1.818 while the calculated value for a mixture of the above composition, based upon Ford's data for the end members of the group, is 1.816, the two agreeing within the limit of error.

THE CRYSTALLOGRAPHY OF ANTIMONY TRIBROMIDE

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Antimony tribromide is a very highly deliquescent salt which rarely forms in well developed crystals. Crystals of the halogen salts of antimony were first described by Cooke[1] who prepared his material while investigating the atomic weight of antimony. The crystals described in this paper were obtained from R. K. McAlpine,[2] of the Department of Chemistry, who has recently revised the atomic weight determination of Cooke.

The crystals were formed by subliming powdered antimony tribromide in a sealed glass tube which had been exhausted to a pressure somewhat under 1 mm. Upon volatilization the material was deposited in the cooler portions of the tube generally in the form of long, slender, interlacing needles. In a few of the tubes, however, small well-developed crystals were found together with the customary deposit of acicular masses. After a period of several months a considerable growth in the size of these small, well-developed crystals was noted and in some of the sealed tubes crystals appeared where previously none had been observed. These continued to grow and at the end of a year and a half the larger crystals measured 8 by 4 by 3 mm. They were perfectly

[1] Cooke, *Proc. Am. Acad. Arts Sci.*, **13**, 74, 1877.

[2] Willard and McAlpine, *J. Am. Chem. Soc.*, **43**, 797, 1921.