T and H portions of adjacent layers face each other in a non-commensurate match; the composition-conservative glide planes run through the breakpoints of the layers. 

Cosalite, PbInS2, a modified type: C11-2B13324S. 

(4) The lillianite homologous series based on chemical twinning of "galena-like" slabs parallel to (111) of PbS. 

(5) The benjaminite. Intergrowth of (4) and (5) is represented by the principles active in (3).

(6) Layered structures with thickness, regularly offset by composition non-conservative shear planes nearly perpendicular to long remaining octahedron thickness. Examples: lillianite, heyrovskyite, several Pb-Bi-Hg sulphosalts. 

(7) The bismuthinite-alkinite series of derivative structures.

Multiple relationships between the above series exist. The non-commensurability principle is important for (2), (3), (6) making them "broken-up" derivatives of (1). 

(5) and (4) can also be interpreted using the principles active in (6); (7) using the principles active in (3).

(8) layered structures with crystalllographic shear. This family consists of non-commensurate alternating K and T layers of various thickness, regularly offset by composition non-conservative shear planes nearly perpendicular to them.

Junoite, Pb1·5In2S8; proudite, nordstedinite, Bi1·InS1·1. 

(7) The bismuthinite-alkinite series of derivative structures.

08.1-08 SERIES OF NONHOMOGENEOUS LINEAR STRUCTURES.

By Yu.N. Vastyan', Ya.P. Yarmolyuk, B.I. Hidzyhevsky. Chair of inorganic chem - stry, Lvov State University, Lvov, USSR.

We name the nonhomogeneous linear those structure types, which can be described by means of a sequence of a certain compositionally and coordinationally different "two-dimensional" structure fragments taking turns along a certain axis (named the layering axis). The present paper deals with structure types of trigonal and orthorhombic symmetry, formed by BeAl2, CaF2, Al2S3, AuCu2, Cu, α-Pb, α-Po fragments. The structure types, consisting of two or three fragments pointed above, form the series described by parent-structures formulas or by unit cell composition. We propose the numerical symbols, in terms of which one can describe the nonhomogeneous linear structure types. The main differences between our symbols and well known Zhdkov symbols used for homogeneous linear structures is that each numeral, indicating the number of identical fragments placed one after another in the structure, must have two labels: superscript index indicating its own fragmental symmetry and the subscript one indicating the parent-structure from which this fragment was taken. The numerical symbol describes exactly the sequence of fragments in the structure and gives information about its symmetry.

The structures consisting of fragments mentioned above belong to 22 tetragonal and orthorhombic space groups. Symmetry of over 40 structure types of intermetallic compounds always belongs to one of the 22 space groups (with exception of the cases of deformation and superstructure formation). The real structure types belongs, as a rule, to the most symmetrical groups and have the simplest numerical symbols. Our method of interpretation is useful not only for systematisation and description of the known structure types, but may be used as an instrument for determination of unknown ones. There is a simple linear dependence between the unit cell and fragmental lattice constants, moreover the coefficients in such linear equations are the numerals from the numerical symbols.

08.1-09 REGULARITIES IN BINARY INTERMETALLIC COMPOUNDS. By P. Villars, K. Girgis

Institut für Kristallographie und Petrographie CN 809 Zurich, Switzerland.

Examination of all the 105 known binary structure types containing more than 5 representatives showed that 85% exhibited the following three regularities.

1. A linear d = dependence**.

2. A narrow spacefilling, c/a and b/a range for the given structure type.

3. A dependence between the position of the elements in the periodic table and their equipoint occupation in the structure.

3(i) The existence of a narrow grouping, for represent. of a given structure type, in an isostochiometric diagram of binary element-combinations. This diagram (3(i)) has been used to put forward one or two possible structure types, with a high probability of existence, for synthesised binary intermetallic compounds. For example, up until 1970 there were 811 known intermetallic compounds with no assigned structure types, and during the past ten years, the structure types of 120 have been established. By using the above diagram, the correct structure type has been proposed for 110 of these.


** d0 is the shortest distance between the elements A and B. This distance depends upon all the lattice constants and pos. parameters. R = (n1 + n2) / (n1n2) = n1, n2 are the radii of the elements A and B ( E. Flather et al., A 224, June (1960)), n1, n2 are the stoichiometric proportions.