atoms. However, besides the higher C content of $UMoC_2$, the C positions of $Ho_2Cr_2C_3$ do not all correspond to the occupied positions in $UMoC_2$, although the arrangements of the metal atoms correspond in the two structures. The compounds $U_2Mo_2C_3$ and $U_2W_2C_3$ are isotypic with $Ho_2Cr_2C_3$. This also appears to be the case for the compound $PuWC_{1.75}$ (Ugajin, Abe, J. Nucl. Mater. (1973) 47, 117).

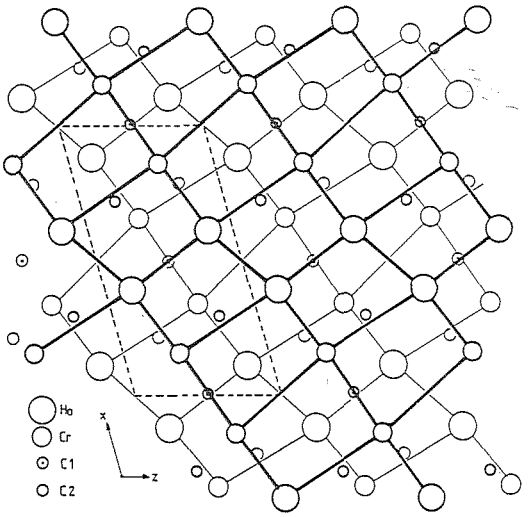

Fig. 1. Crystal structure of $Ho_2Cr_2C_3$. Atoms connected by thick and thin lines are at y = o and y = 1/2 respectively.

The new compound $La_2Mn_{17}C_{3-x}$ is isotypic with $Pr_2Mn_{17}C_{3-x}$. A compound reported by Stadelmaier and Park (Z. Metallk. (1981) 72, 417) with the composition $Gd_4Fe_{31}C_3$ most likely is isotypic with $Pr_2Mn_{17}C_{3-x}$. The structure will be discussed together with other recent examples of ternary carbides which can be derived from binary structure types by filling of interstitial voids.

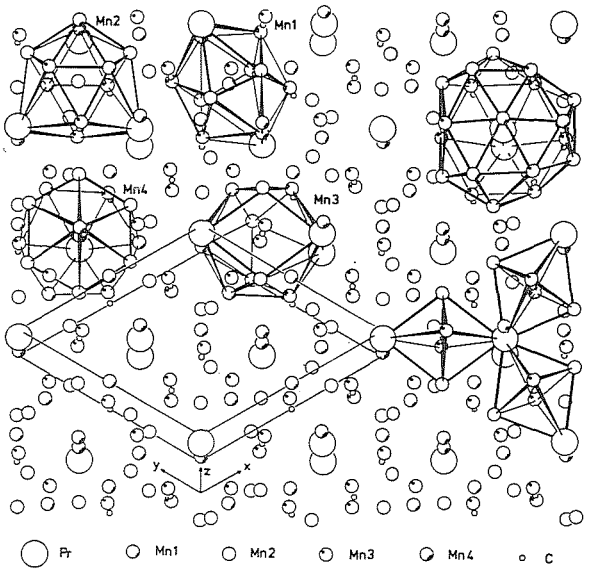

Fig. 1. Coordination polyhedra in $Pr_2Mn_{17}C_{3-x}$. Only one half of the structure between z = 0 and z = 1/2 is shown.

08.3–6 $Pr_2Mn_{17}C_{3-x}$, A COMPLEX CARBIDE WITH FILLED Th_2Zn_{17} STRUCTURE. By G. Block and W. Jeitschko, Anorganisch-Chemisches Institut, Universität Münster, D-4400 Münster, West Germany.

The title compound was prepared by reaction of the elemental components in a high frequency furnace with subsequent annealing at 800 °C. It crystallizes with a rhombohedral cell, space group $R\bar{3}m$ and the hexagonal lattice constants: a = 8.8714(7) Å, c = 12.783(2) Å, V = 871.2 Å^3, Z = 3. The structure was determined from single crystal X ray data and refined to a residual of R = 0.023 for 25 variable parameters and 414 independent structure factors. The structure can be derived from that of Th_2Zn_{17} (Makarov and Vinogradov, Sov. Phys. Crystallogr. (1956) 1, 499) with the Pr and Mn positions corresponding to those of Th and Zn. The carbon atoms fill octahedral voids formed by a square of Mn atoms (Mn-C distances of 1.94 Å (2x) and 1.95 Å (2x)) and two Pr atoms at 2.57 Å. The ideal composition with all octahedral voids filled is represented by the formula $Pr_2Mn_{17}C_3$. The refinement of the occupancy parameter of the carbon positions, however, showed that these positions are only occupied to 57±3 % in the crystal picked for the structure determination. The Pr atoms are situated in a coordination polyhedron formed by three carbon atoms at 2.57 Å, 19 Mn atoms (at distances varying between 3.19 and 3.43 Å) and one Pr atom at 3.95 Å. The four crystallographically different Mn atoms have coordination numbers 12, 13 and 14 with zero or one C neighbor, one, two or three Pr neighbors and between 9 and 13 Mn neighbors (Fig. 1).

08.3–7 TEMPERATURE DEPENDENCE OF THE LATTICE CONSTANTS AND THE CRYSTAL STRUCTURE OF $Mn_{11}Ge_8$ AT 295 K AND 116 K. By T. Ohba, N. Watanabe and Y. Komura, Faculty of Science, Hiroshima University, Naka-ku, Hiroshima, Japan.

Four intermetallic compounds were reported in Mn-Ge system according to Elliot. Among them Mn_3Ge_2 was found to be antiferromagnet at low temperature and it transforms to weak ferromagnet at 160 K, then changes to a paramagnet at 300 K [Zavadskii and Fakidov; Soviet Physics JETP 24, 887 (1967)].

Israiloff et al. [Monatsh. Chem. 105, 1387 (1974)] studied the crystal structure and concluded that Mn_3Ge_2 is isotypic with $Cr_{11}Ge_8$ by a comparison of the powder pattern. In this paper, the crystal structure of $Mn_{11}Ge_8$ is refined by a single crystal X-ray diffraction method at 295 K and 116 K. Crystal Data : Orthorhombic, Pnam, a=13.214(2), b=15.880(3) and c=5.0905(5) Å, Z=4 at 295 K.

The temperature dependence of the lattice constants is measured using a single crystal. Fig. 1 shows a curve for lattice constant a vs temperature for an example. A kink appears at the transition temperature (160 K). Kinks are also observed on curves for b- and c-axis at the same temperature.

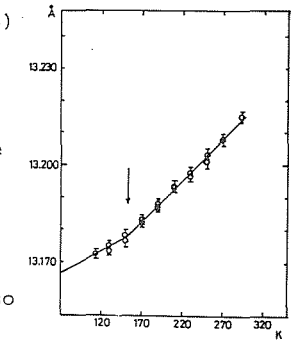

Fig. 1