Leeds LS2 9JT, England. X-ray diffraction, high-resolution electron microscopy and Fe-57 Mössbauer spectroscopy have been used to study the WO_3–Fe system. The results from the diffraction methods can be interpreted either on a scheme involving bronze formation leading to a phase Fe_xWO_3, or on a scheme whereby a reduced tungsten oxide is in equilibrium with $FeWO_4$. The Mössbauer results show, however, that up to $x = 0.0193$ in Fe_xWO_3 a bronze is formed with either an orthorhombic or a tetragonal structure, while above $x = 0.0193$ the phases are $FeWO_4$ and reduced tungsten oxides. The Fe_xWO_3 bronze contains a few isolated [102] crystallographic shear planes, which implies a very slight deviation from the ratio WO_3. Reaction of Fe with WO_3 and W at 950°C under vacuum leads to the bronze phase.

Les Hypovanadates Alcalinoterreux. Evolution Structurale de la Serie CaV_nO_{2n+1} (n = *1, 2, 3, 4*). J. C. Bouloux and J. Galy. Laboratoire de Chimie du Solide, Universite de Bordeaux I, 351 cours de la Liberation, 33405 Talence, France. Six vanadates (+*IV*) have been synthesized by solid state reactions and characterized in the MO–VO_2 systems (M = Ca, Sr, Ba): $CaVO_3$, CaV_2O_5, CaV_3O_7, SrV_3O_7, CaV_4O_9, and SrV_5O_{11}. Structural data are given. The structural evolution of the series CaV_nO_{2n+1} is described as n increases from $n = 1$ to $n = 4$; the vanadium +*IV* has a fivefold square pyramid coordination.

An Electron Microscope Study of Tungsten Oxides in the Composition Range $WO_{2.90}$–$WO_{2.72}$. R. Pickering and R. J. D. Tilley. School of Materials Science, University of Bradford, Bradford BD7 1DP, Yorkshire, England. The structure of tungsten oxides occurring in the composition range $WO_{2.90}$–$WO_{2.72}$ has been studied by transmission electron microscopy. In the oxygen-rich part of the phase range, W_nO_{3n-2}CS phases exist. The lowest value of n found for extensive areas of ordered material was 16. At the oxygen-poor end of the phase range, $W_{18}O_{49}$ exists. No evidence was found to indicate that this phase has an appreciable composition range. Between the W_nO_{3n-2} oxides and $W_{18}O_{49}$ a previously unreported oxide was found. Its structure has been partly elucidated by high-resolution electron microscopy and it has been shown to bear more resemblance to a tunnel structure than to a CS phase.

On the Cobalt Induced Moments in Ternary Gadolinium–Yttrium Compounds. E. Burzo and D. P. Lazar. Institute for Atomic Physics, P.O. Box 5206, Bucharest, Romania. The results of magnetic measurements on $(Gd_xY_{1-x})Co_2$ compounds between 4.2 and 1300°K are presented. The experimental data are analyzed assuming that the cobalt atoms present a paramagnetic moment or an exchange-enhanced paramagnetism. Both models showed that the cobalt ordered moments are linearly dependent on the exchange field acting on these atoms ($H_{ex}/M^{\circ}_{Co} \approx 3 \times 10^6$ Gs/μ_B), being essentially induced by the magnetic interactions. The experimental data seem to be in agreement with the presence of the cobalt paramagnetic contribution. No first-order transition in these systems is observed.

Transition de Phase Ferroelectrique–Antiferroelectrique par Inversion de l'Energie d'Echange. P. Gonnard, L. Eyraud, Y. Fetiveau, and M. Troccaz. Laboratoire de Genie Electrique et Ferroelectricite, Institut National des Sciences Appliquees de Lyon, Batiment 504, 69621 Villeurbanne, France. Some solid solutions are investigated with the help of two-sublattice model proposed by Néel in ferromagnetism. We suppose, like Kittel, that the F–AF transition occurs when the interlattice coefficient of molecular field W_{ab} changes sign. The high-temperature transition is F/P or AF/P according to the sign of $\nu = dW_{ab}/dT$. Under hydrostatic compression the transition is F → AF in agreement with the negative sign of $\eta = dW_{ab}/dp$. In each case, the molecular field coefficient of each sublattice W_{aa} is much more important than W_{ab}.

Les Hypovanadates de Magnesium $MgVO_3$ *et* MgV_2O_5. *Structure Cristalline de* $MgVO_3$. J. C. Bouloux, I. Milosevic, and J. Galy. Laboratoire de Chimie du Solide du C.N.R.S., Universite de Bordeaux I, 351 cours de la Liberation, 33405 Talence, France. Two phases have been investigated in the MgO–VO_2 system at 900°C. $MgVO_3$ crystallizes in the orthorhombic system, space group $Cmc2_1$, with $a = 5.243$, $b = 10.028$, and $c = 5.290$. The structure is built up from square pyramids VO_5 and MgO_5 sharing edges and forming sheets connected through oxygen atoms. Its structure is related to the ReO_3 and Mg_2NF structures. MgV_2O_5 is orthorhombic with $a = 3.696$, $b = 9.965$, and $c = 11.019$; the space group is $Cmc2_1$, $Cmcm$, or $C2cm$.