An Electrochemical Study of High-Temperature Stability of Compounds between the Rare Earths and Copper Oxide. YU. D. TRETYAKOV, A. R. KAUL', AND N. V. MAKUKHIN. Moscow State University, Moscow 117234, U.S.S.R. Equilibrium conditions for formation of the compounds $CuLn_2O_4$ (Ln = La, Nd, Sm, Eu, Gd) and $Cu_2R_2O_5$ (R = Tb, Dy, Er, Yb, Y, In) were studied in galvanic cells with solid electrolyte ZrO_2 (Y_2O_3) in the temperature range 950–1150°C. The results together with results of a study of the equilibrium CuO–Cu_2O were used to calculate the ΔG° of formation of the double oxides from CuO and the Ln_2O_3 (In_2O_3, Y_2O_3) as listed above. We found a decrease in the stability of the compounds $CuLn_2O_5$ relative to the initial oxides in the sequence La–Gd and an increase in the stability of $Cu_2Ln_2O_5$ in the sequence Tb–Yb. The results are discussed on the basis of special features of the crystalline structure of the compounds examined.

Magnetic and Structural Studies of Rare Earth–Iron–Manganese Laves Phase Ternaries. I. A. S. ILYUSHIN AND W. E. WALLACE. Department of Chemistry, University of Pittsburgh, Pennsylvania 15260. Structures, magnetic properties and Mössbauer spectra of the systems $Er(Fe_{1-x}Mn_x)_2$ and $Ho(Fe_{1-x}Mn_x)_2$ are presented. The alloys are C15 structure for x in the range 0 to 0.6 and C14 for higher values of x. Incorporation of Mn in the lattice decreases the Curie temperature (T_c), presumably due to antiferromagnetic Fe–Mn interactions. For $x > 0.2$ the Mössbauer spectra at 300°K is a doublet since $T_c < 300$°K; the doublet splitting decreases with increasing x. Analysis of the structural results indicates that the charge on the Mn cores is higher in the C14 than in the C15 structure alloys.