3. *Results.* Fig. 1 shows the resistance of a Cr–V sample as a function of the temperature in the range of pressures up to 2670 atm. In this alloy no minimum in the electrical resistivity versus temperature curve has been observed, in agreement with the experiments of Trego and Mackintosh[2]), and several other investigators[9,10,11]). To determine the Néel temperature from the resistivity versus temperature curves, we used three different graphical analyses: that of Trego and Mackintosh[2]) and two other analyses, displayed in fig. 2. As the character of the curves does not change with pressure, systematic errors in the determination of T_N do not play a role in calculating dT_N/dp. We determined dT_N/dp with the three analyses independently, the results agree with each other within the experimental error.

In fig. 3 the logarithm of the transition temperature is plotted against the vanadium concentration. We find a linear dependence, again in agreement with Trego and Mackintosh. The values for the Néel temperature represented here are slightly higher than expected from their measurements. This discrepancy may be explained by the fact that we used polycrystalline samples, in contrast with Trego and Mackintosh, who used single crystals for their measurements.
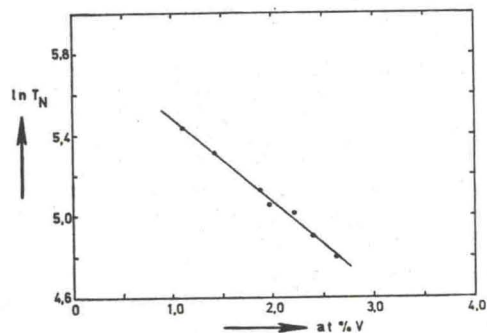

Fig. 3. ln T_N as a function of the concentration in Cr–V alloys.

In fig. 4 the pressure dependence of the Néel temperature is shown for the different alloys. The decrease of the Néel temperature is linear in pressure up to 3000 atm. For the initial slopes $(dT_N/dp)_{p\to 0}$ we took the slopes of these curves. In table I the results for all alloys are summarized.

The values of T_N in this table, and those of $(dT_N/dp)_{p\to 0}$ are average values from the three analyses displayed in fig. 2.

The uncertainty in the Néel temperature itself is 0.4 K, while the uncertainty in $(dT_N/dp)_{p\to 0}$ is 0.3 K/1000 atm.
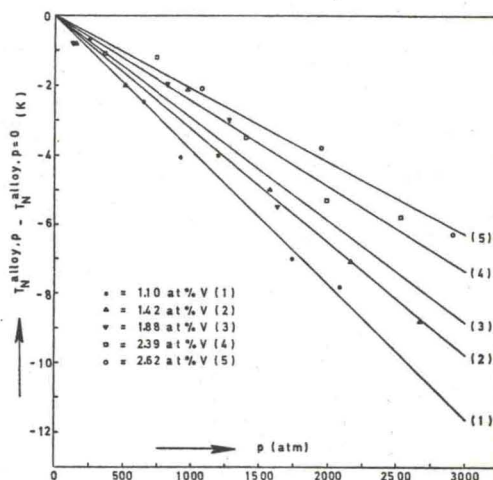
Fig. 4. Change of the Néel temperature *vs.* pressure for the different alloys.

TABLE I

Concentration (at %)	$T_N(p = 0)$ (K)	$(dT_N/dp)_{p\to 0}$ (K/1000 atm)
1.10	229.9	−3.86
1.42	203.4	−3.26
1.88	168.8	−2.95
1.96	156.8	not measured
2.21	151.3	not measured
2.39	135.0	−2.44
2.62	121.7	−2.09

4. *Discussion.* The outstanding feature of the antiferromagnetism of chromium and its dilute alloys with some of the transition metals is that the period of the magnetic structure is incommensurate with that of the crystal lattice. This structure was shown[12]) to arise from the condensation of bound electron-hole pairs, all having the same net wavevector Q, which determines the period of the spin density wave (SDW) built up by them. The wavevector Q is uniquely determined by the geometry of the Fermi surface and thus does not need to coincide with any reciprocal lattice vector; hence the incommensurateness of the structure.

Fedders and Martin[13]) investigated the simplest two-band model displaying electron-hole pairing accompanied by SDW: two identical Fermi spheres,