

and finally, from (1) : .....

Let us compare the value obtained from (1) with that calculated from the formula for the atomic magnetic moment of pure ferromagnetic metals given in /3/ :

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(3)

where  $m_0 = n_d - 2$ ,  $n_d$  = the number of unpaired d electrons in the isolated atom. For iron.....and  $K_2 = 3.85$  magnetons/kxu,  $d_1$  and  $d_2$  ~~are~~ are the distances between the atom and ~~the~~ <sup>its</sup> nearest and next-nearest neighbors respectively (for iron  $d_1 = 2.478$  kxu and  $d_2 = 2.86$  kxu), and D is an empirical constant characteristic of the particular transition metal, being 2.73 kxu for iron. The negative sign in front of the ~~third~~ third term in (3) is taken if  $d_2 \dots D$  (as it is for iron). Putting the numerical values for iron into (3), we find that  $m = 2.23$  magnetons (experiment gives 2.22). Formula (3) leads to the conclusion : For uniform compression ( $d_1$  and  $d_2$  become smaller),  $m$  must fall, and for uniform expansion it must increase.

It is well known that this conclusion is confirmed qualitatively by experiment /1, 2, 4/. For a quantitative estimate of the effect we differentiate (3). We obtain

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(4)

In (4) it is supposed that..... . Putting the numerical values for iron (see above) into (4), we obtain..... $\text{atm}^{-1}$ , which agrees satisfactorily with our own data at the temperature of liquid nitrogen (lines 4 and 5 in Table 1), but disagrees considerably with /1/ (lines 1 and 5 in Table 1).