where D is in g/cm³ and T in °K. The liquid densities at the melting and normal boiling points are as follows:

	Fe	Ni
$D_{m.p.}$, (g/cm³)	7·015	7·905
m.p., (°K)	1805°	1728°
$D_{b.p.}$, (g/cm³)	5·828	6·304
b.p., (°K)	3160°	3110°

The equation of the rectilinear diameter, in the same units, are as follows:

$$D_{\phi}^{Fe} = 4{\cdot}309 - 4{\cdot}42 \times 10^{-4}\, T$$

and

$$D_{\phi}^{Ni} = 4{\cdot}954 - 5{\cdot}795 \times 10^{-4} T$$

The liquid range diagrams of the two metals were constructed and that of iron is given in Fig. 1. The critical temperatures of Fe, estimated *at* 6750°K, and of Ni,

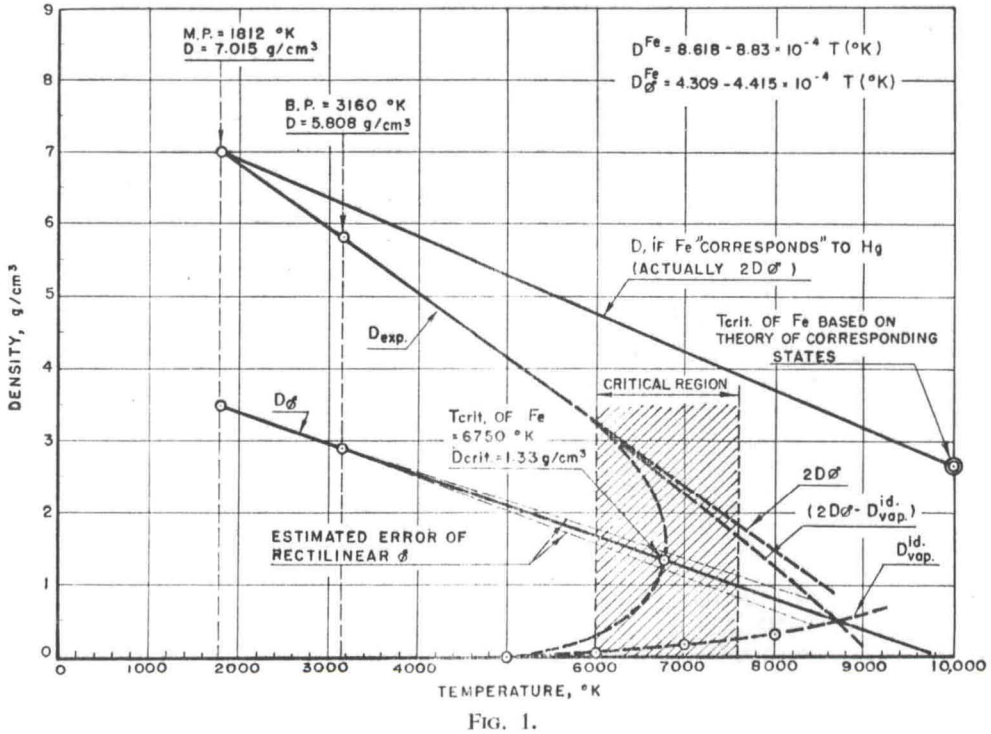

FIG. 1.

estimated *at* 6000°K, were based on the ratio of $D_{b.p.}/D_{crit.p.} \simeq 4{\cdot}35$, since this ratio is based on the liquid range diagram of many other metals[9], i.e. Hg, Bi, Ag, Pb, Sn and Ga. However, if we base our estimates of critical temperatures on the law of corresponding states and the following reliable heats and entropies of vaporization[10] of iron and nickel:

[9] P. J. MCGONIGAL, A. D. KIRSHENBAUM and A. V. GROSSE, *J. Phys. Chem.*, **66**, 737 (1962).